The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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COMBMARTIN MINES.—IMPORTANT AND VALUABLE MINE MATERIALS, COUNTING-HOUSE FURNITURE, LAND, &c., near ILFRACOMBE, NORTH DEVON.—TO BE SOLD, BY AUCTION, by Mr. G. HEARSON, on Wednesday and Thursday, the 24th and 25th days of May next (if not previously disposed of by private contract, of which due notice will be given), all the

STEAM-ENGINES, MACHINERY, MINING MATERIALS, AND OTHER STORES,

TOGETHER WITH THE LANDED PROPERTY,

Belonging to the Combmartin Lead and Silver Mining Company—consisting of

ONE excellent 50-inch cylinder PUMPING-ENGINE, 9-feet stroke in cylinder, and 8-feet stroke in shaft, with two boilers, together about 24 tons.

ONE excellent double-acting STEAM-WHIM, 14-inch cylinder and boiler, about 5 tons, with crushing apparatus, stamps, cast-iron axle, heads, and lifters, complete.

ONE 7 inch PRESSURE-ENGINE, complete.

ONE 26 and 50-inch Sims's combined cylinder PUMPING-ENGINE, with one boiler, about 10 tons, 9-feet stroke in cylinder, and 8-feet stroke in shaft.

Several hundred fathoms of 7, 8, 9, 10, 11, 13, and 14-inch PUMPS, flat-rods and capstan-ropes, of various sizes, steam-whim and horse-whim chains, and a general assortment of mining materials and machinery.

For particulars of which, see handbills, which may be had of the auctioneer, Barnstaple.

Dated April 25, 1848.

EXTENSIVE IRON-WORKS FOR SALE.—TO BE SOLD, BY PUBLIC ROUP, within the Royal Exchange Sale Rooms, Glasgow, upon Wednesday, the 24th day of May next, at Two o'clock afternoon (if not previously disposed of by private bargain), the BLAIR IRON-WORKS, belonging to the Ayrshire Iron Company, situated in the parish of Dalry, and county of Ayr.

These works, which have been recently erected at an immense cost, consist of two blowing-engines, five blast-furnaces, workmen's houses, steam-engines for working the minerals, together with utensils at the pits, furnaces, &c., all in working order, and capable of producing upwards of 35,000 tons of pig-iron per annum.

One of the blowing engines, high-pressure, estimated at 90-horse power, was erected in 1841; the other, a condensing engine, was erected in 1847, and is estimated at 200-horse power, the latter being capable of blowing five furnaces, and both fitted up in the most substantial manner, and at present in the best working condition.

The furnaces have been erected with the greatest care, and are fitted with air-heating apparatus of the most approved construction. The make of each furnace has generally averaged upwards of 150 tons of iron per week, and some of them have produced 180.

There are, besides the manager's house and store buildings, 187 workmen's houses, in a habitable state, attached to the furnaces and pits, and there are 20 partly built, which could be finished at a small additional outlay. There are also a new foundry, wright shop, fire-brick work, smithy, &c.

The MINERAL FIELDS, consist of COAL, IRONSTONE, LIMESTONE, and FIRE-CLAY, held in lease, by the company, at moderate fixed rents and royalties, all situated within easy distances of the furnaces, and for the most part have the advantage of railway communication.

The COAL-FIELDS consist of several hundred acres, of which only a small portion has been wrought. Several pits, fitted with good engines and machinery, are sunk to the coal, and partly in operation.

The IRONSTONE consists of the well-known black-band, yielding about 3000 tons of calcined stone per acre; and it has been estimated that there are 300 acres or thereby still to work—besides which, there is a large extent of clay-band ironstone, hitherto little wrought, but capable of yielding a large output. There are 15 pits, with excellent steam-engines—some of them in present operation, and others ready to resume working.

The LIMESTONE QUARRY is worked by open cast, and is connected with the works by railway.

The FIRECLAY is abundant, of excellent quality, and cheaply produced.

The Glasgow, Paisley, Kilmarnock, and Ayr Railway (extending to Carlisle), passes close to, and has connection with, the furnaces—by means of which, and others in connection with it, the produce can be conveyed to the city and port of Glasgow (32 miles off), and to the seaports on the Ayrshire coast, each within a few miles of the works.

There is a large stock of calcined ironstone, coal, and limestone on the ground, so that the works may be put into immediate operation, and, under judicious management, the manufacture of pig-iron may be carried on to the greatest advantage. The concern will be found to be well worth the attention of persons having the requisite capital, and affords an opportunity of entering into the business seldom to be met with.

MALLEABLE IRON-WORKS.—Considerable progress has been made in the erection of extensive malleable works, which, when completed, will be capable of turning out 300 tons of bar-iron weekly. The most of the necessary machinery has been prepared by the contractors; and a portion of the work could be brought into operation in a few months to produce the half of the above estimate. This work is nearly adjoining the Pig Iron-Works, and connected by railway, and will be sold either together therewith or separately.

Plans of the property and mineral workings lie for inspection at the Ayrshire Iron Co.'s office, 113, St. Vincent-street, Glasgow, where, on application to Mr. Brown, every necessary information will be afforded, and orders given for inspection of the works.

N.B.—The purchaser of these works has an opportunity of, at the same time, acquiring the Mansion-house, Lands, and Minerals of Pitcon, immediately adjoining (the latter being part of those above referred to, as held in lease by the company), which are advertised to be sold at the same time and place.

VALUABLE ESTATE AND MINERAL FIELD IN AYRSHIRE FOR SALE.—TO BE SOLD, BY PUBLIC ROUP, within the Royal Exchange Sale Rooms, Queen-street, Glasgow, upon Wednesday, the 24th day of May next, at Two o'clock afternoon, unless previously disposed of by private bargain,

All and WHOLE the LANDS and ESTATE of PITCON, extending to about 216 acres, imperial measure, and comprehending the following lands—viz.: the Three Merk Land of old extent, of NETHERMAINS of PITCON; the Two Merk Land, of old extent, of OVERMAINS of PITCON; the Two and One-Half Merk Land, of old extent, of LINTSEEDRIDGE; 6 acres 19 falls, or thereby, of the farm and lands of MIDDLETON, situated on the east side of the high road leading from Dalry to Kilbirnie; and one rood and 0 falls, or thereby, of the lands of KERSELAND, situated on the north or north-west side of the water of Garnock, with the teinds, parsonage, and vicarage of said lands; together with the MANSION HOUSE of PITCON, and OFFICES and GARDEN thereto belonging; and the whole MINERALS and METALS in the several lands above-mentioned; and whole privileges and pertinents belonging to the same; but, excepting these eight acres or thereby Scotch measure, now belonging to the Glengarnock Iron Company, of their present working seam of ironstone in the said lands; and also excepting the Pitcon Railway and branches, in so far as the same are within, and pass through, the said lands.

The MANSION HOUSE, which is pleasantly situated, and commands a most extensive view, is in good order and repair, and has attached to it a set of suitable and commodious offices, with walled garden, shrubbery, and pleasure-ground; and the whole are enclosed from the other portions of the estate by a high and substantially-built wall.

The LANDS (exclusive of those attached to the mansion house), let under lease, extend to about 140 acres Scotch, or thereby, and are at present held by a respectable tenant at a surface rent of £490 sterling per annum. The farm steading upon the lands is most substantially built, and in good order and repair.

The MINERALS, which have been ascertained to comprise the most valuable descriptions of ironstone, extend to about 140 acres still unwrought, and are held by the Ayrshir Iron Company upon a lease, at a present fixed rent of £1000 sterling per annum; or, in the option of the landlord, at a certain lordship, which has hitherto greatly exceeded the fixed rent, and yielded a very large yearly return. Upon a moderate calculation, the black-band yields about 3000 tons calcined ironstone to the imperial acre. There are, besides, in the course of being wrought on the lands, several seams of coal and other minerals.

The Estate of Pitcon is situated near to the village of Dalry, at which there is a station upon the line of the Glasgow, Paisley, and Ayr Railway, and in the immediate neighbourhood of the Ayrshire Iron Company's Works, with which it is connected by railway communication. This property will, in consequence, form a most desirable and profitable investment to the purchaser of the Ayrshire Iron Company's Works (the Blair Iron-Works), which, along with the benefit of the mineral lease of Pitcon, are advertised to be sold by public roup, at the same time and place with this estate.

The public and parish burdens payable from the estate are small; and whether regarded as in connection with the Ayrshire Iron Company's Works, or separately, there is seldom so desirable and eligible an investment as the present offered to competition.

For further particulars, application may be made to M'Clelland and M'Kenzie, accountants, 128, Ingram-street, Glasgow; Robert M'Cowan, accountant, 17, Gordon-street, there; Knox and Findley, writers, 29, St. Vincent-place, there; James M'Cosh, writer in Dalry; or, to Douglas and Ranken, writers, 81, St. George's-place, Glasgow, in whose hands the articles of roup and title deeds, and a plan of the estate and mineral workings, may be seen.

Mr. M'Cosh will give directions for the lands being pointed out, and the mansion house, offices, and garden, being shown to inquirers. BOGLE and Co., Auctioneers.

Glasgow, April 22, 1848.

VALUABLE SEA-SALE COLLIERIES TO BE LET.— TO BE LET, and entered upon on the 1st of July next, the valuable current-working COLLIERIES of EVENWOOD and NORWOOD, in the county of Durham.

These collieries are situated upon the line of the Stockton and Darlington Railway, by which the coals are conveyed to the shipping ports of Stockton and Middlesborough; and also, by means of this, and the York and Newcastle, and Leeds and Thirsk Railways, the coals have access to the important land-sale trade of Northallerton, Thirsk, Ripon, York, the lead-mining districts, and other towns in Yorkshire, and for shipment on the Ouse; and, by means of the proposed Northern Counties Union Railway, with the important land-sale trade of the western parts of Yorkshire and Westmoreland.

The royalties are very extensive. Two seams of coal are in working—one upwards of 6 feet, and the other of 3 feet. The pits are at a moderate depth from the surface, and the coal is worked at an exceedingly cheap rate, and is much prized as a household coal, both for export and land-sale.

The entering tenant has the option of taking what stock he may require, at a valuation; and the amount of capital required to enter upon the collieries will be of very small amount.

For particulars apply to Thomas Wheldon, Esq., Barnard Castle; or to Nicholas Wood, Esq., Newcastle-upon-Tyne.—Newcastle, March 3, 1848.

NATIONAL DISINFECTED AND DRY MANURE COMPANY—OFFICES, 7, BANK CHAMBERS, LOTHBURY.

Notice is hereby given, that the DEED OF SETTLEMENT of this company now LIES ready FOR SIGNATURE, at the OFFICES, as above, where it will remain until further notice.—May 10, 1848. JAMES HORACE KENWORTHY, Sec.

AUDLEY, STAFFORDSHIRE.—Valuable FREEHOLD PROPERTY.—TO BE SOLD, BY AUCTION, by Mr. HILLIARD, at the GEORGE INN, in BURSLEM, in the County of STAFFORD, on Friday, the 26th day of May, 1848, at Five o'clock in the evening precisely, subject to conditions to be then and there produced—All that EXCELLENT FARM, comprising a messuage, or dwelling-house, barn, cow-house, and other outbuildings, gardens, two cottages, and 20 closes, fields, pieces or parcels of arable, meadow, and pasture land, containing together, by admeasurement, 80 acres and 4 perches, in statute measure, or thereabouts (be the same more or less), and known by the name of the HOLLINWOOD ESTATE, situate and being in TALK-UPON-THE-HILL, in the parish of AUDLEY, in the county of Stafford, and now in the occupation of Mr. William Baddeley, and his under-tenants.

Under this estate are valuable VEINS and BEDS of COAL and IRONSTONE, of the best quality, such as are being worked at the extensive and important coal and iron-works of Thomas Kinnersley, Esq., at Kidsgrove, by which this estate is bounded on the north-east. The Hollinwood Estate also adjoins the Woodshutts Colliery, at which place recently the Nab's Coal, the most valuable in the section, has been sunk to great advantage; and, from its vicinity to the Staffordshire Potteries, a ready sale for the coal may be anticipated.

The Trent and Mersey Canal, as well as the North Staffordshire Railway, pass within two miles of the estate; and the turnpike road, leading from Newcastle to Congleton, intersects it at one point thereof.

The buildings are in good condition, and the land is in an excellent state of cultivation.

The tenant will show the premises—and, for further particulars, application may be made to Mr. Mitcheson, of Longton, mining agent; Mr. Francis Cruso, solicitor, Leek; Messrs. Hacker and Bloore, solicitors, Leek; or to Mr. Vaudrey, solicitor, Congleton, with whom a plan of the estate is lodged for inspection.

Leek, May 4, 1848.

VALUABLE FREEHOLD ESTATE.—WAINGROVE'S HALL, DERBYSHIRE, will BE OFFERED FOR PUBLIC COMPETITION, by Mr. BREARLEY, on Wednesday, the 31st day of May inst., at the ROYAL HOTEL, in DERBY, at Five o'clock in the afternoon (subject to such conditions as will be there exhibited), all that MODERN MANSION, known as WAINGROVE'S HALL, with requisite OFFICES, COACH-HOUSE, STABLING for 10 horses, BARN, and other BUILDINGS and CONVENIENCES, COTTAGES for labourers, GARDENS, ORCHARDS, PLEASURE GROUNDS, and FISH-PONDS—suitable for the residence of a gentleman's family; together with the under-mentioned PARCELS of excellent enclosed arable, meadow, and pasture LAND and PLANTATIONS, adjoining and contiguous to the said mansion-house, situated in the several parishes of PENTRICH and HEANOR, in the COUNTY OF DERBY—viz.:

No. on Plan.		Cultivation.	A.	R.	P.
1	Great Wood Close	Arable	7	1	33
2	Plantation	—	0	3	1
3	Little Wood Close	Arable	1	3	23
4	Plantation	—	0	1	11
5	Far Court Close	Arable	3	1	15
6	Plantation	—	3	0	12
7	The Pasture	Pasture	13	2	37
8	Limekiln Close	ditto	6	0	3
9	Round Meadow	Arable	11	0	34
10	Plantation	—	0	0	22
11	Ditto	—	0	2	37
12	Ditto	—	1	0	15
13	Over Willow Close	Arable	3	0	2
14	Plantation	—	0	0	22
15	Nether Willow Close	Arable	2	0	22
16	Joshua's Meadow	ditto	4	3	25
17	Bracken Close	Pasture	11	3	21
18	Barn Croft	ditto	3	0	17
19	The Hall, Outbuildings, Garden, Orchards, Pleasure Grounds, Lawn, and Entrance Road	—	23	2	34
20	The Wilderness	—	0	2	33
21	Broom Close	Arable	2	1	38
22	Common Piece	ditto	0	3	33
	Total		102	3	10

The house is situated on a gentle acclivity, nearly in the centre of the estate, in the immediate neighbourhood of the Donnington Hunt, within 9 miles of Derby, 12 from Nottingham, and 5 from Alfreton; Ambergate and South Wingfield Stations, on the Midland Railway, and Codner Park, on the Erewash Railway, are at easy distances.

The estate lies in a ring fence—is about equally in the parishes of Pentrich and Heanor—that in the latter parish being tithe free.

The land is of excellent quality, well timbered with oak, ash, larch, &c., of mature growth; and, together with the fish-ponds, pleasure grounds, and plantations, give a park-like appearance, and well-watered by never-failing springs.

The whole estate abounds with several beds of hard and soft coal, of the quality of the far-famed old Denby and Kilbourne Fields, as also with superior ironstone, valuable stone for building purposes, and excellent brick-clay, the situation and qualities whereof will always command a market.

A bill is now before Parliament (read a second time) to obtain an Act for making a branch from the Midland Railway to Ripley, and provision is therein made to construct a branch on a self-acting plane, about 12 chains in length, purposely to connect the estate therewith.

*** A person resident at the house is appointed to show the estate; and further particulars and information may be obtained at the offices of Messrs. J. W. Bromley and Aldridge, solicitors, 1, South-square, Gray's Inn, London; of the auctioneer, in Derby; or of Messrs. Rickards and Son, solicitors, Alfreton, Derbyshire, where maps and surveys of the estate are deposited for inspection.—Alfreton, May 1, 1848.

TO BE SOLD, OR LET, a valuable COAL MINE, in the township of GREAT HARWOOD, in the county of Lancaster. The mine has been recently proved, and found to be 3 feet 2 inches in thickness, and of excellent quality; it is commonly called, or known, by the name of the UPPER MOUNTAIN MINE, and extends over about 1000 statute acres, which will be divided into suitable lots.

The property is situated between the towns of Blackburn and Clith roe, and is intersected by a branch of the East Lancashire Railway.

A section of the borings may be seen, by applying to Mr. Boosie, Rufford-hall, Ormskirk; or to Mr. Whittle, coal viewer, Charnock Richard, Chorley—to either of whom proposals may be sent.

TO IRONMASTERS.—BRADLEY IRON-WORKS.— FOR SALE, BY PRIVATE CONTRACT, the FORGE and ROLLING and SLITTING-MILL, at BRADLEY, near Bilston, in the county of Stafford, consisting of an excellent FORGE and MILL, lately erected; the former is worked by a steam-engine, of 32-horses power, and the latter by one of 80-horses power, with suitable and commodious OFFICES, WAREHOUSES, STABLING, and other conveniences.

The forge has a double cam ring, with two hammers; and the mill is capable, in its present state, of slitting and rolling every description of manufactured or malleable iron. The machinery is constructed upon the newest and most approved principle, and the whole is in perfect order and good working condition.

With the works, will BE SOLD a commodious WHARF and BASIN, on the banks of the Birmingham Canal; also, TWO DWELLING-HOUSES, suitable for the residence of managers.

The whole is at present held by Messrs. G. B. Thorneycroft and Co., under an agreement for a lease, which will expire at Midsummer, 1848, when possession may be had.

The tenants will show the works; and further particulars may be had from Mr. John Dunning, of Bradley; or at the offices of John Finchett Maddock, Esq., of Chester; or of Messrs. Wagstaff, Marsh, and Barratt, solicitors, Warrington.

IMPORTANT TO CAPITALISTS.—MINERAL FIELD AND VALUABLE FREEHOLD ESTATE, IN NORTHUMBERLAND, TO BE DISPOSED OF.—The COAL, LIMESTONE, and IRONSTONE, in the MANOR of HALTWHISTLE, and county of Northumberland, are hereby OFFERED TO BE DISPOSED OF, for the unexpired term of 34 years, with immediate possession.

This valuable royalty is very extensive, comprising upwards of 2500 acres—the greater part of which contains the aforesaid minerals. The Newcastle and Carlisle Railway (with a branch to Alston, now in progress, and commencing at the Haltwhistle Station, in the said manor) passes through the manor, and affords a ready and easy access to the shipping ports of Carlisle and Maryport, as well as to the important landsale trade of Carlisle; also to Penrith, Kendal, Lockerbie, Ecclefechan, and the south-west of Scotland, by means of the Lancaster and Caledonian Railways.

The COALFIELD consists of upwards of 1500 acres of coal—nearly the whole of which is unwrought. The seam of coal, which is now being worked, at the Fell End Colliery, is nearly 4 feet thick—is a very good gas and coking coal, and well adapted for general use, being almost free from sulphur. From the peculiarly favourable formation of the surface, about 600 acres of coal may be won and drained, by means of a level, at a very trifling cost.

The IRONSTONE may be said to be almost inexhaustible, and has been proved to be of very superior quality, and will extend over nearly the whole of the manor. There is also reason to expect, that the black-band ironstone will prevail over the royalty, of a similar quality to that worked at Chesterwood, in the same range of strata.

The LIMESTONE comprises a breast of the "thick limestone," upwards of 1¼ mile in length; and, from the thin rid, or bearing, may be worked and burnt at a low rate.—There are three kilns built, two of which are now in operation.

The FREEHOLD ESTATE, called CROSS-BANK FARM, consists of nearly 100 acres of arable, meadow, and recently enclosed land, and was purchased by the present lessee, to secure the important desideratum of a free way-leave to join the Newcastle and Carlisle Railway, being the only part in the manor where this could be accomplished.

The whole will be found to be well worth the attention of capitalists, being one of the most valuable and extensive mineral fields in the north of England; and, from the great and increased demand for coke and coal on the west coast for landsale and shipment, this royalty would realise, when opened out, the most sanguine expectations of mining adventurers embarking in the speculation.

For further particulars, apply to John Fawcett, Esq., Petteril Bank, Carlisle; and to Mr. R. R. Maddison, Haltwhistle, who has the plans and sections, and will show the premises.—Haltwhistle, May 3, 1848.

TO IRONMASTERS.—The ADVERTISER is desirous of making AN ENGAGEMENT in connection with IRON-WORKS, either to fill the post of CASHIER and SUPERINTENDENT OF ACCOUNTS only, or to include FURNACE and GENERAL MANAGEMENT also, if the works are on a small scale. The Advertiser's system of book-keeping at iron-works, and analysing the cost accounts, enables the proprietors of the works, at all times, to see the real and exact position of the concern. Ample and satisfactory references will be given.

Address "B. I.," *Gazette* Office, Parsonage-lane, Bath.—May, 1848.

TO SMELTING COMPANIES AND OTHERS.—FOR SALE, a QUANTITY of FLUOR-SPAR, of superior quality.—Apply to James Wolferstan, East Tamar Consols, Beeralston, Devon.

TO BE SOLD, BY PRIVATE CONTRACT, about THIRTY TONS of POTSHERDS, carefully chipped and prepared; also, a QUANTITY of OLD POTS, and about TWENTY YARDS of 8-inch PUMPS, complete, with rods and T-bob; also, a small QUANTITY of 12-inch PUMPS.—Apply to Box R., 57, Post-office, Liverpool.

TREWALLACK MINE.—TO BE SOLD, BY PRIVATE CONTRACT, an excellent ENGINE, for pumping or drawing, about 20-inch cylinder, in good condition, with a boiler of 10 tons.—For particulars, application to be made to Capt. John Lean, Camborne; or to Mr. H. Ellery, Truro.

N.B.—There are also several tons of pitwork—viz.: 18 pumps, 13-inch; 2 working barrels, 13-inch, nearly new, 2 doorpieces, and 2 windbores.

TO EXCAVATORS, CONTRACTORS, MINING AND WATER COMPANIES.—TO BE SOLD, a 20-horse CONDENSING STEAM-ENGINE and BOILER, complete, with capital FORCE PUMP, in good working order—admirably suited for temporary or permanent pumping work. This engine will be sold at such a low price as will induce purchase.—Apply to Mr. Mann, Phœnix Company, south-west side of the bridge at Vauxhall.

TO BE SOLD, a 40-horse power HIGH-PRESSURE STEAM- ENGINE, with ONE BOILER, equal to 30-horse. The engine is quite new, and not now being wanted, will be sold cheap.—Apply to Mr. Charles Sanderson, Sheffield.

FOR SALE, BY PRIVATE CONTRACT—A single-acting PUMPING-ENGINE—cylinder 30-inch diameter, 9-feet stroke, equal beam, with 7-ton boiler, cisterns, spring beam, and first set of rod-shafts attached, being the engine of Wheal St. Cleer.—For particulars, apply to Capt. Osborne, Liskeard; Mr. West, engineer, St. Blazey; or Mr. Rendle, the purser, 13, Octagon, Plymouth.

STEAM-ENGINES.—From 8 to 20-horse power ENGINES ALWAYS IN STOCK.

Apply to Mr. CAPPER, Engine-Maker and Founder, BIRMINGHAM.

Price—£12 to £16; with boiler, £22 per horse.

MINING OFFICES, No. 1, ST. MICHAEL'S-ALLEY, CORNHILL, LONDON.—Messrs. WATSON & CUELL have received instructions TO SELL, BY PRIVATE CONTRACT, SHARES in Wheal Trelawny, Mary Ann, Trehane, Carwinning Hill, South Francis, Duvon Great Consols, Herodsfoot, Callington, South Tolgus, East Wheal Rose, and South Trelawny Mines.

Applications for price, &c., to be made to Messrs. W. & C., who have also shares in other mines for sale, paying 20 per cent. per annum.

MINING OFFICES—Established Five Years.— THOMAS P. THOMAS begs to inform his friends and the public, that he has REMOVED from No. 18, Threadneedle-street, to No. 3, GEORGE-YARD, LOMBARD-STREET, LONDON (late Messrs. Phillips and Tilady's).

N.B.—Dealer in English and Foreign Funds, Mining, Railway, Gas, and other shares.

MR. JAMES STRIDE, MINING, SHARE, ESTATE, PARLIAMENTARY, and GENERAL AGENT, begs to announce, that he has REMOVED, from 35, Charing-cross, to 27, SPRING-GARDENS.

London, 27, Spring-Gardens.

MR. R. TREDINNICK, THREE KING'S COURT, *LOMBARD-STREET, LONDON,*

Continues to DEAL in every description of MINING, RAILWAY, BANKING, INSURANCE, CANAL, and OTHER SHARES.—Statistical information afforded gratuitously upon personal application.—MONEY ADVANCED upon the above securities.

WILLIAM W. TAYLOR & CO., MINERAL SURVEYORS, MINING SHAREBROKERS, &c.,

No. 2, ROYAL EXCHANGE-BUILDINGS, LONDON.

WILSON & FRASER, 2, WELLINGTON-BUILDINGS, LIVERPOOL, and 13, EXCHANGE-PLACE, GLASGOW, have always ON SALE PIG-IRON, BAR-IRON, RAILWAY CHAIRS, and RAILWAY BARS.

JAMES LANE, MINING SHARE DEALER,

75, OLD BROAD-STREET, LONDON.

MONEY.—MESSRS. KILLICK & CO. (late Winstanley, Killick, & Co.), SHAREBROKERS, inform their friends and the public, they make IMMEDIATE ADVANCES, to any amount, on the deposit of English and Foreign Railway Shares, Scrip, and Debentures, upon exceedingly advantageous terms: they also BUY and SELL every description of STOCK and MINING SHARES, at much less commission than usually charged.

6, Bank Chambers, opposite the Bank of England.

BANWEN IRON COMPANY—Established 1846—for WORKING the IRON MINES on the BANWEN ESTATE, in the neighbourhood of SWANSEA, Glamorganshire. The mines are now in work, and further CAPITAL being REQUIRED for erecting additional FURNACES, a portion of the reserved shares of £6 each may now be had, on application at the offices of the company. A deposit of £2 per share to be paid down, and the remainder by two instalments, at intervals of two months. This company offers peculiar advantages, and the profits are estimated to return a dividend of 25 per cent. S. P. HARRIS, Secretary.

Offices, 23, Threadneedle-street.

CAMBORNE CONSOLS MINING COMPANY.

OFFICES REMOVED TO 29, POULTRY, LONDON.—May 11, 1848.

CORNISH MINING COMPANY.—OFFICES, No. 15, *MONUMENT CHAMBERS, LONDON.*

CLARIDGE'S PATENT ASPHALTE OF SEYSSEL COMPANY.—At the Annual Meeting of the proprietors of this company, held on the 4th inst., the report having been read, was adopted, by which a DIVIDEND of 7½ per cent. was proposed, PAYABLE on and after Wednesday next, the 10th inst.; and the thanks of the meeting to the directors and secretary, for their great exertions on behalf of the company, was unanimously voted.

The dividend will be payable at the offices of the company, Stangate, near Westminster-bridge, London. It will be requisite that the shares be left at the office the day previous.

May 5, 1848. J. FARRELL, Secretary.

OFFICE OF THE COLOMBIAN MINING ASSOCIATION, 13, Austinfriars, London, May 4, 1848.—A SPECIAL GENERAL MEETING of the proprietors of this association will be HELD at this office on Monday, the 15th of May, 1848, at half-past Two o'clock precisely, for the purpose of confirming the resolution passed at the special general meeting of the association, held on the 6th April.

By order of the board of directors, L. R. JONES, Secretary.

PATENT TIDAL WHEEL COMPANY (Completely Registered).—Notice is hereby given, that the FIRST ANNUAL GENERAL MEETING of the proprietors in the above company will be HELD at the offices of the company, 1, Walbrook-buildings, Mansion-house, London, on Friday, May 19, 1848, at Twelve at noon precisely, for the election of directors and auditors, and other business.

Dated this 5th day of May, 1848. By order, T. BENNETT, Secretary.

WEST WHEAL JEWEL MINING ASSOCIATION.— Notice is hereby given, that a CALL of TEN SHILLINGS per share has this day been made, in conformity with the Deed of Settlement, PAYABLE by TWO INSTALMENTS of FIVE SHILLINGS each—namely, on the 15th June and 15th October respectively—into the banking-house of Messrs. Praeds and Co., Fleet-street, to the credit of the association; with Messrs. Tweedy and Co., Redruth; into the bank of the said firm, at Redruth; or at the office of the association, as under.

By order of the board, WM. NICHOLSON, Secretary.

57, Old Broad-street, May 8, 1848.

PATENT CAST-IRON PIPE MANUFACTORY, CHARLES-STREET, ST. ROLLOX.

D. Y. STEWART & CO. beg respectfully to inform Merchants, Engineers, and Directors of Gas and Water Companies, that, having completed the erection of their works for the exclusive MANUFACTURE of CAST-IRON PIPES, are now prepared to enter into CONTRACTS for the SUPPLY of that ARTICLE.

D. Y. S. & CO., having no connection with any smelting-furnaces, can assure purchasers that their pipes will be made from the best mixtures of pig-iron; and Stewart's Patent enabling them to make perfect moulds without any DIRT or PARTING, and the casting being performed while the mould is in a vertical position, ensures an equality of thickness of metal hitherto unattainable.—Glasgow, May, 1848.

IRON AND STEEL "PHYSIC."—The "physic," or mixture, was the subject of a patent granted to Messrs. Southall and Crudginton of Feb. 8, 1844, for "improvements in the manufacture of iron and steel." It is composed of sulphur and nitre, with borax, soda, or potash, and alum, which are broken into a granular state, and made up into parcels of about 1½ lb. each—the proportion of the constituent materials, one to another, being equal parts by weight of sulphur, nitre, borax, and alum, to one-half of soda or potash. The mixture is incorporated with the melted iron. One parcel is considered to be a sufficient "dose" for every 4 cwts. of iron in the puddling-furnace.—*Mec. Mag.*

WEALTH OF BORNEO.—As a specimen of one of the modes of industry practised at Sarawak, we may quote Mr. Brooke's account of the operations set on foot by himself for the collection of diamonds:—"The Santah river is famous for its diamonds; and I believe that they abound, as the natives formerly worked largely, making holes of various depths close to the stream; and Patingi Ali assured me, that he himself, with four men, once got 60 diamonds, some of them three and four carats, in one day. The establishment of Santah consists of Hajji Ibrahim, the Chinese Mohammedan, already mentioned, two Banjar diamond workers, and six labourers, and I have to-day added four Chinese for the diamond trench. The natives, as I before said, work in holes on the water's edge, and then sift the earth in search of the precious stones; but it is a tedious and uncertain process, and by no means likely to develope the real resources of the land; and I have, therefore, resolved to work after the Chinese fashion, of trenching the grounds with a run of water through the trench. The course of the river is peculiarly favourable for this operation. Three excavations in the trench to receive the deposits of diamonds and gold. The outlay will be about 100*l.* sterling. How the imagination fires at the mention of a diamond mine—diamonds as big as pigeons' eggs are present to the fancy, and each day the dreaming possessor may expect wealth, and each day be disappointed. My expectations are, however, moderate, and I think reasonable, for I propose to work the mine to support the plantation; and if the diamonds only pay for the labour, a few years will produce a revenue in coffee and nutmegs, betel and cocoa-nuts, for the soil is excellent. The diamonds are found mixed in the gravelly substratum, and there is likewise a small quantity of gold to be obtained. The earth is washed at the water's edge in large round wooden pans, shaped like shields; the diamonds are picked out, and there remains a residue of black sand, like gunpowder and gold particles; of course, a good deal of neatness and attention is requisite, and the workers seem jealous and superstitious, dislike noise, particularly laughter and merriment, as it is highly offensive to the Spirit who presides over the diamonds; and, what is perhaps more important in their eyes, the diamonds cannot be found if the abode of quiet is disturbed by unholy mirth. It is surprising to see people calling themselves Mohammedans yielding to Pagan rites of presenting offerings to the Spirit of the mine—the Gnome King—fowls, rice, eggs, ciri, are weekly offered; but I was pleased to hear that they were sensible enough to eat up these good things after the oblations have been made. Hajji Ibrahim, with the most solemn face, requested me to give him an old letter, and he engraved thereon some Chinese characters two inches long, which, being translated, signify, 'Rajah Muda Hassim, James Brooke, and Hajji Ibrahim, present their compliments to the Spirit, and request his permission to work at the mine.'"

THERE IS NO REMEDY KNOWN EQUAL TO HOLLOWAY'S PILLS FOR THE CURE OF ASTHMA.—Mr. Richard Treacy, of Belmont, Carlow, having derived so much benefit from the use of these pills, wishes it to be made public, for the benefit of all persons troubled with asthma, that he had been suffering from this distressing complaint for the last 15 or 16 years; and although he had tried a great variety of remedies, yet none seemed to do him any good; he then had recourse to Holloway's pills—which invaluable medicine, in a short time, afforded him relief, and his breathing has become perfectly free and easy.—Sold by all druggists, and at Prof. Holloway's establishment, 244, Strand, London.

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Published by the authors, and may be had at their residence; sold also by Strange, 21, Paternoster-row, London; Heywood, Oldham-street, Manchester; Philip, South Castle-street, Liverpool; Robinson, 11, Greenside-street, Edinburgh; Berry and Co., Capel-street, Dublin; and, in a sealed envelope, by all booksellers.

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PART THE FIRST treats of the anatomy and physiology of the reproductive organs, and is illustrated by six coloured engravings.—PART THE SECOND treats of the consequences resulting from excessive indulgence, and their lamentable effects on the system, producing mental and bodily weakness, nervous excitement, and generative incapacity; it is illustrated by three explanatory engravings.—PART THE THIRD treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. The consequences of neglect, and of the abuse, of mercury are also clearly pointed out. This section is illustrated by 17 coloured engravings.—PART THE FOURTH treats of the prevention of disease by a simple application, by which the danger of infection is obviated. Its action is simple, but sure. It acts with the virus chemically, and destroys its power on the system. This important part of the work should be read by every young man entering into life.—PART THE FIFTH is devoted to the consideration of marriage and its duties. The causes of unproductive unions are also considered, and the whole subject critically and philosophically inquired into.

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Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY	Asiatic—14, Grafton-street	2	P.M.
	Royal Botanic—Inner Circle, Regent's-park	3½	P.M.
MONDAY	Statistical—12, St. James's-square	8	P.M.
	British Architects—16, Grosvenor-street	8	P.M.
	Chemical—Society of Arts, Adelphi	8	P.M.
	Medical—Bolt-court, Fleet-street	8	P.M.
TUESDAY	Civil Engineers—25, Great George-street	8	P.M.
	Pharmaceutical—17, Bloomsbury-square	11	A.M.
WEDNESDAY	Geological—Somerset-house	8½	P.M.
	Society of Arts—Adelphi	8	P.M.
	Ethnological—17, Saville-row	8	P.M.
	Literary Fund—73, Great Russell-street	3	P.M.
THURSDAY	Royal—Somerset-house	8½	P.M.
	Antiquaries—Somerset-house	2	P.M.
FRIDAY	Royal Institution—Albemarle-street	8½	P.M.

Electricity of Mineral Veins.

MR. HUNT'S LECTURE AT THE ROYAL INSTITUTION, ALBEMARLE-STREET.

On Friday evening, May 5th, Mr. ROBERT HUNT (keeper of mining records at the Museum of Economic Geology) delivered a lecture on the "Electricity of Mineral Veins," at the Royal Institution, Albemarle-street.—The chair was occupied by his Grace the Duke of Northumberland; and the theatre was filled with a most *distingué* audience, comprising some of the first names in the philosophic world.

Mr. HUNT commenced his lecture by remarking, that the class of phenomena which would form the subject of consideration that evening, although of the highest interest, had not yet received so great an amount of experimental examination as their importance required; and, as their curious nature were, consequently, not generally known, he trusted that, having spent many days and nights in the mines of Cornwall, in this investigation, he should be able to interest his audience by a narrative of the facts now known, as well as some of a novel character.

As a preliminary of absolute necessity, the lecturer explained the nature of a mineral lode by the aid of a beautiful isometrical drawing of the lead district of Nentsford. A lode was, in fact, a fissure, formed by some disturbance of the earth, and filled with mineral deposits. Three theories prevailed as to the origin of mineral lodes; in the first place, they were supposed to be contemporaneous with the rocks themselves; secondly, it was conceived, that fissures were filled by the sublimation of matter from great depths in the earth; and, lastly, that substances were precipitated from solution in water, which flowed through those great rents in the earth. A mineral lode was not to be regarded as being entirely composed of metallic substances; on the contrary, they were most frequently found containing a large portion of earthy matter, amongst which the metallic ore was disseminated. Among the indications which appeared to support the theory of electrical action in these formations, was to be regarded the regular disposition of these substances on either side of the lode. The electrical theory might be explained in a few words. Ampere supposed that currents of electricity traversed the earth from east to west, and these currents were thought to influence the chemical changes which had gone on within the fissure during the formation of the lode, and determine the order of arrangement. The most striking conditions which appeared favourable to such a view were, that metals of various kinds were found associated with peculiar classes of rocks—tin and copper being associated, in a remarkable manner, with the primary rocks; whilst lead was found more abundantly in the limestone formations. These rules, although general, were not constant—many striking exceptions might be named. In the remarkable mining county of Cornwall the rocks were granite, killas, or clay-slate, greenstone, and elvan. The mineral lodes were always most abundant near the junction of the slate and granite rocks; they were generally found in a direction nearly from north-east to south-west; and where they were contrary to this, or nearly in the line of the magnetic meridian, there was almost invariably a great difference in the character of the mineral substances contained in the lode. This was shown by reference to a very large map of Cornwall, upon which the lodes of lead and copper were accurately marked. Again, a very remarkable parallelism was observed in most districts between the directions of the lodes, and the veins of granitic porphyry (elvan) which occurred in their vicinity; and this fact had been brought in support of the theory, which refers mineral formations to the action of subterranean heat.

The various questions which arose out of the phenomena of mineral veins, and their including rocks, had been most ably treated of by Sir Henry De la Beche, Mr. Joseph Carne, Mr. R. W. Fox, Mr. John Taylor, Mr. Hopkins, and others; he would not, therefore, dwell on that part of the subject.

The lecturer then proceeded to examine, whether any of the conditions known to belong to the rock formations of a mining district were sufficient to produce electrical phenomena. It had been ascertained that granite was always colder than slate—a difference of 2° or 3° was always detected at all depths. This difference might possibly give rise to weak thermo-electric currents; but, in the experiments he (the lecturer) had made, to ascertain this point, no such currents had been detected. It was also well known that a constantly increasing temperature was discovered as we descended into the earth. By this means, it was evident that any given portion would represent a bar unequally heated. The following table of temperatures, obtained in the rock and lode, exhibited the variations of temperature in the deep mine of Tresavean:—

At sea level	In granite	57° F.
At 170 fms.	Lode in slate	77° F.
At 196 fms.	Do. in granite	83° F.
At 208 fms.	Do. in granite	85° F.
At 310 fms.	In granite	94° F.

According to the generally received views of thermo-electric action, such differences would be sufficient to produce currents. That was undoubtedly the case in metallic and good conducting bodies, but no such result had been obtained from experiments on granite, slate, or greenstone.]

[A series of experiments were here introduced—and, notwithstanding the use of an active galvanic series, it was shown that the voltaic current would not traverse either granite, slate, elvan, or greenstone—connection being made with them and a very delicate galvanometer, upon which not the slightest indication of any action on the needles could be observed.

When moist, these rocks became over their surfaces conductors; and, by this means, the action on a single pair of zinc and copper plates, not more than an inch square, was detected through a considerable extent of country. Mr. W. J. Henwood had supposed that he had detected currents of voltaic electricity through the granite and slate rocks of Cornwall; but the lecturer, who had repeated those experiments with great care, was led to believe that the slight deflection of the needle obtained was due entirely to some chemical action in the wires employed at the point of contact with the rock, or within its length—such slight disturbances being of constant occurrence in all experiments of this class. Although there was not, therefore any experimental evidence in proof of the voltaic condition of the rocks, yet the regularity of arrangement observed in the lodes themselves—in which zinc, copper and quartz, lime, pyrites, barytes, fluor-spar, argentiferous lead, and quartz, alternated in the most regular order, as was shown by specimens from the mines of Cornwall, Derbyshire, Saxony, and Mexico—present features so analogous to those which often appear in galvanic experiments, that we are compelled certainly to infer that some modification of the electric force was concerned in the phenomena. Specimens of pseudomorphous bodies from the Cornish mines, and arrangements of brown spar upon quartz, from Schemnitz, quartz upon fluor spar, and iron pyrites, and the double sulphuret of copper upon large quartz crystals, in all of which a uniform system of arrangement, perfectly independent of each other, was shown—and these were to be referred, in all probability, to the disposing power of electrical currents.

Such were the principal evidences to be adduced in support of the electrical theory. Mr. R. W. Fox was the first to discover any indications of electricity in mineral lodes. By placing copper wires against two portions of a lode, or of two lodes divided by a cross-course, and connecting those wires with a galvanometer, a considerable deflection of the needle was obtained—often to such an extent, that, from the violence of the action, it was impossible to note the deflection. In nearly all the mineral lodes of Cornwall, upon which experiments were made, these currents had been detected. Experiments made by Mr. Fox, in Coldberry and Skeers, in Teesdale, gave, however, negative results; and the results on the lead lodes at the Mold Mines were not very decided. Prof. Reich, of Freyburg, obtained very decided results upon the lead and silver lodes of that district; and, in one case, succeeded in detecting a mass of silver ore at some distance behind the rock. Von Strombeck, on the contrary, could obtain no results from the lead and copper lodes on the right bank of the Rhine. In addition to these results, others of a most satisfactory kind had been obtained by Mr. Henwood and Mr. John Arthur Phillips. The lecturer had himself almost invariably obtained very decided galvanometric indications from the copper lodes of Dolcoath, East Wheal Crofty, East Pool, and other Cornish mines—in one instance so powerfully, that electro-chemical decomposition was produced. Mr. Fox has been successful in procuring an electrotype copy of an engraved plate by the current collected from two lodes of iron and of copper pyrites, and also in inducing magnetism in a bar of soft iron. Mr. Pattinson, at the wish of the British Association, made a series of experiments on the rocks of the limestone formation in the lead districts of the north; but he could not detect any evidence of electrical currents.

It now became a question, to ascertain if these currents of electricity, detected in mineral lodes, were in any way connected with the general currents traversing the earth, according to the theory of Ampere; or, were they of a more local character? The lecturer was induced to conclude, from all his experiments and observations, that these currents were entirely local, and due to the chemical action going on within the lode itself. In all cases where chemical action could be detected, it was certain the current acting on the galvanometer was more energetic than where no chemical change was apparent. In this way might be accounted for the failure of Von Strombeck on the lead and copper lodes of the Rhine, and of Mr. R. W. Fox himself on the lodes of Teesdale—in all probability, those lodes being in a very permanent condition. It was thought by the lecturer that the fact, that these currents often being found to traverse the lodes in a direction contrary to the currents of Ampere, and frequently at right angles to them, militated against that view which referred the one to the influence of the other. The lecturer had also detected currents from piles of ore on the surface, which had been exposed to the influences of the atmosphere; and these currents were certainly only measurers of the amount of chemical action going on in the pile.

That these local lode currents might have a powerful effect upon masses of matter exposed to their influence, was highly probable; and he was disposed to refer the conditions in which cobalt and nickel were often found in the cross-courses, between the ends of dislocated lodes, as due to this local chemical electricity. The character of many of the decomposing lodes was next described; and it was shown that, under the influence of the percolation of rain-water from the surface, charged with oxygen, and the action of the saline water rising from below, few lodes admitting water to flow through them could be free from chemical action. He had analysed the waters of many of the deep mines, and the following were the results of a few of these analyses:—

The water from Great St. George contained, in a cubic foot, 590 grains of common salt; that of the United Mines, rising hot, 481 grs.; of Dolcoath, 218 grs.; of Great Wheal Charles, 612 grs.; Consolidated Mines, at 80 fathoms, 656 grs., and at the 250 fathom level, 918 grs. This muriate of soda was estimated quite independently of the earthy and mineral salts. It was, doubtless, derived by infiltration from the ocean; and, from its quantity, acted, no doubt, powerfully upon the lodes it traversed.

Although these currents, detected by the galvanometer, were not regarded by the lecturer as in any way proving electrical agency in the formation of mineral veins, yet the evidence obtained by Mr. Fox, by Mr. Jordan, and more recently by himself, that electricity would give to clay a schistose structure and form along a curved line, no doubt related to some line of electrical action—a miniature lode of copper (of which illustrations were exhibited) supported the general view of electrical action. Incidentally, the conducting powers of iron and copper pyrites, galena, and some other minerals, were experimentally shown; and also the decomposition of yellow ore by electrical action.

In conclusion, the lecturer carefully recapitulated all the main points of evidence, for and against the electrical views, and pointed out many very curious circumstances, evidently dependent upon some peculiar conditions of the adjacent rocks, but which could not be referred, with any certainty, to electrical action. Probably, those currents which, now nearly determined, as in constant flow around the earth, might produce the curious results observed; but a far larger amount of experimental evidence than that yet obtained was required, before this view could be admitted as one of the received facts of inductive science.

GEOLOGICAL SOCIETY.

MAY 3.—Sir H. T. DE LA BECHE (President) in the chair.

J. Dorrington, Esq., was elected a Fellow.

A paper "On the Development of the Permean System in Saxony," as communicated by Professor Naumann to Sir R. Murchison, was read. In an introductory notice, Sir R. Murchison stated the grounds on which he had been induced to adopt the term Permean, as the designation of a great system intermediate between the Trias and Carboniferous group; and the reasons for which he still preferred it to the name of Zechstein, by which one member of it has long been known in Germany, and which L. Von Buch had proposed for the whole group. Prof. Naumann describes his discovery of the same formation, in the vicinity of Oschatz, where it contains the *Calamites gigas* and ferns, like those of the true Permean, together with similar genera of fossil fish; and in all its relations approaches much more to the Russian than to the Thuringian formation of the same age.

"On Changes of Climate resulting from Changes in the Earth's Axis of Rotation," by Sir J. Lubbock. The author pointed out certain conditions, not considered by Laplace, in which it was possible for a change in the earth's axis to take place. Thus, if the axis of rotation did not coincide with the axis of figure, and the surface was to experience any friction or resistance, then the pole of the axis of rotation would describe a spiral round the pole of the axis of figure, until finally it became identical with it. He also considered those changes which might result from dislocations of the strata from cooling, which he thought might also produce some change in the earth's axis of rotation.

"An Elucidation of the Successive Changes of Temperature, and the Levels of the Oceanic Waters upon the Earth's Surface, in Harmony with Geological Evidence," by W. D. Saull, Esq. The author, from an investigation of matter in its various forms, proposed a new view of the nature of light and heat. He also stated, that the poles of the earth are not fixed and invariable in position, as astronomers generally suppose, but have a constant motion; and, from the combination of these causes, he deduced a new theory of the alterations of climate, and the changes in the relative level of sea and land observed by geologists.

INSTITUTION OF CIVIL ENGINEERS.

MAY 9.—JOSHUA FIELD, Esq. (President), in the chair.

The paper read was "Observations on the Causes that are in constant Operation, tending to alter the Outline of the Coasts of Great Britain, to affect the Entrances of Rivers and Harbours, and to form Shoals and Deeps in the Bed of the Sea;" by Mr. J. T. Harrison, M. Inst. C.E. After noticing the gradual deterioration which the harbours of Great Britain are undergoing, the paper gave as the causes of these effects, the action of fresh water, of the tidal wave—the wind waves, and springs, and atmospheric changes, dwelling principally upon the tidal and wind waves. Professor Airey's and Mr. Scott Russell's views on the positive wave of translation (first order), and the oscillating wave (second order), were examined; the peculiarity of the former being, that the motion of the whole mass of the water was in the same direction as that of the wave itself; whilst, in the latter, the motion of the water was alternately opposed to, and in the direction of, the wave. The tidal wave was considered as a purely oscillating wave in the open sea, changing its character as it passed into shallow water. It was supposed that a wave of the first order was generated whenever the water, heaped up by a projecting headland, passed and made its escape into the adjoining water, at a lower level, and that it carried with it gravel and shingle into mid-channel. The regularity of the bottom of the English Channel, and the material of which it is composed, were instanced, to prove that the bottom was now in progress of formation from the aqueous action of this deposition of matter. The effects of the tidal wave along the coasts at Poole, and in the Isle of Wight, were given, to show that such a wave of translation was generated and crossed the Channel, from the Department de la Manche. The results of a series of experiments upon the action of waves on transportable materials showed that certain definite forms were assumed by sand or shingle, under given circumstances—for instance, that the depth of the end of the foreshore below the water depended upon the size and character of the wave acting upon it. It was urged that the end of such a foreshore was to be found at 90 or 100 fms. under water, stretching from Ushant to the south-west coast of Ireland, and that the tidal wave, in its progress up the channel, drew down to the mouth the material thrown into it by the waves of translation from the headlands. The accumulative action was seen in the carriage of sand through the Straits of Dover to be deposited on the sand banks of the North Sea.

Referring to Mr. Palmer's paper "On Shingle Beaches," the destructive, accumulative, and progressive actions of the wind waves were considered. The cases most favourable for the display of the effective actions of each were adduced. The influence of tides by varying the height of the water, and that of an on-shore wind in facilitating the destructive action, by retaining the water at a higher level, were pointed out. A flat foreshore, was shown to prevent, in a great degree, the destructive action; whilst, on the other hand, deep water, whether from a strong in-shore tidal current, or from other causes, had a contrary effect, facilitating encroachments on the coast. The progressive action was shown to depend principally upon the angle at which the waves strike the beach. The general question of the travelling of shingle, and of its ultimate destination, was considered at great length—instancing particularly the accumulation of shingle at the Chesil Bank and Dungeness. The state of the Great Western Bay, between the Start Point and Portland, was examined, and arguments were offered to show that it had been formed, in a great measure, by the encroachment of the sea. The process of this encroachment, and the alteration in the mouths of the estuaries falling into the bay, were analysed; and extracts were given from Sir H. De la Beche's work on the geology of Devon and Cornwall, to prove that this process was still in operation. The summary of the arguments in the papers was, that the observed changes in our coasts and the mouths of the rivers were the result of the combined action of the wind, wave, and of the tidal wave; and the attention of engineers was particularly directed to these actions in different localities, in order that, by presenting to the institution the result of their observations, an invaluable collection of recorded facts might be assembled, which would be of great benefit to the profession, and to the scientific world.

It was announced that at the meeting of Tuesday, May 16, the adjourned discussion would take place upon Mr. D. Gooch's paper, "On the Resistance to Railway Trains at Different Velocities."

GARD'S PATENT BORING AND SINKING MACHINERY.

[Patent dated Oct. 21, 1847.—Patentee, Mr. W. G. Gard, of Calstock, engineer. Specification enrolled April 21, 1848.]

Boring the earth to great depths has been always hitherto a very tedious and expensive process, and it has, in consequence, been one of very limited use. In mining, where it might be universally employed with the greatest advantage, for drainage and ventilation, it has not, we believe, been had recourse to for these purposes at all, being merely used in a tentative way, to ascertain the existence, or depth, or direction, of mineral veins and seams. The most essential service which it has yet rendered, has been to the Artesian system of well-sinking, and that solely because it afforded the only possible means of accomplishing the objects in view. Much was expected from the improved plans of Beart, of our own country, and Fauvelle, of France; but neither of them can be said to have been as yet productive of any very decided results. The chief sources of the tediousness and expense of boring, as now commonly conducted, are —first, the employment of borers, which require to be raised to the surface every time they become filled with the debris or sludge; and secondly, the connecting of the borer with the working power employed, by means of jointed rods; the constant screwing and unscrewing of which involves an infinity of trouble. By the improvements which we are now about to describe, the first of these objections is, to a great extent, obviated, and the second entirely so. The borer is so constructed as to take up within itself the borings as fast as they are made, and pass them upwards into a hollow shaft of considerable capacity; so that, for 40, 50, or more raisings of the borer to the surface, and as many interruptions to the progress of the boring, one only will suffice.—Again, instead of jointing-rods, Mr. Gard employs a continuous chain or rope to lower and raise the borer. A further and most important improvement of Mr. Gard's, consists in working the borer by means of machinery, so constructed that the borer makes a perfectly round hole at one and the same operation, and descends always with one uniform force, no matter what the depth of the boring may be—the extra length of chain or rope being regularly counter balanced as the operation proceeds.

Fig. 6.

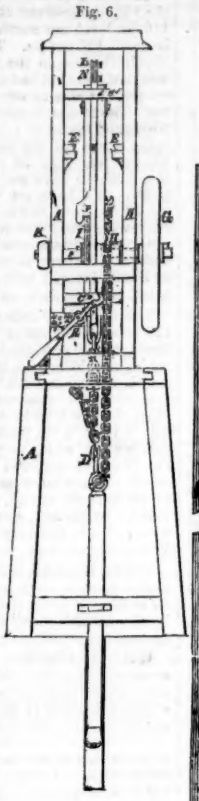


Fig. 1.



Fig. 2.

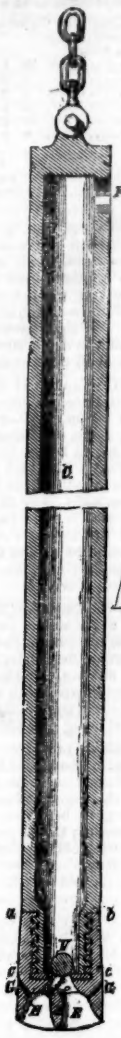


Fig. 5.

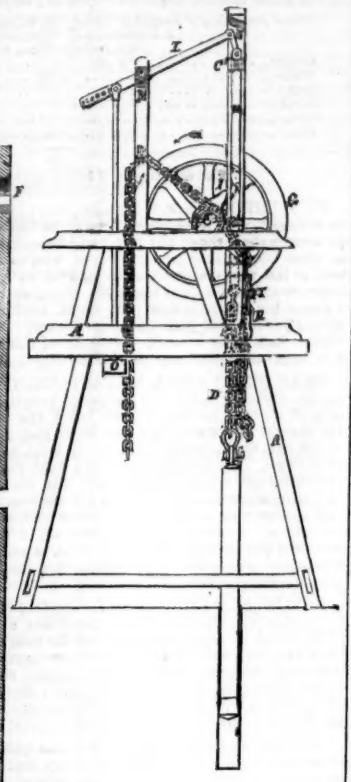


Fig. 4.



Fig. 3.

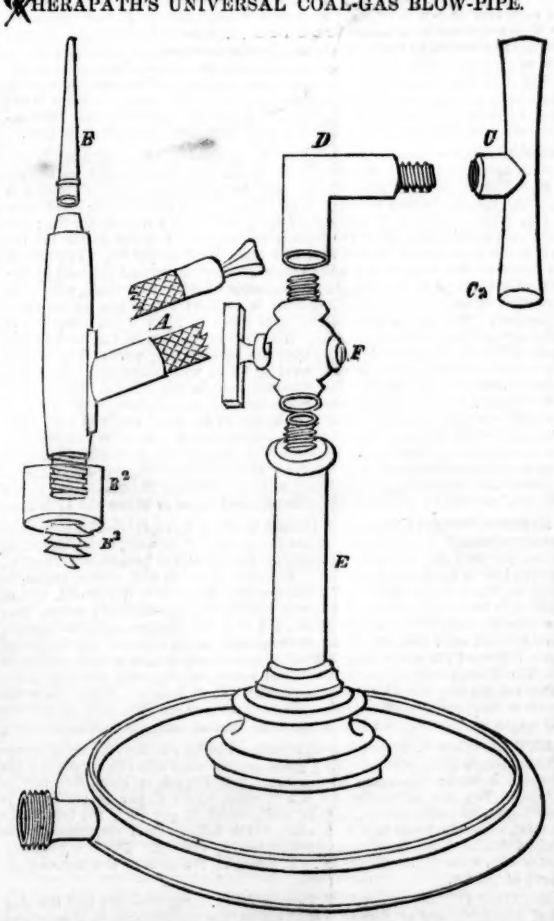


I. The Borer.—The borers usually employed are sometimes made of a round form, like shell-bits and nose-bits used in carpentry; at other times, they are made of a straight chisel-like form, with a hollow shaft or handle; and the borings, when they rise up around the tool to the height of the shaft, pass through an orifice into the hollow of the shaft.—Sometimes, also, borers of the description last mentioned have been surmounted by hollow cylinders, screwed or otherwise fixed into them, which have served as additional receptacles for the borings. All these forms of borers have this defect—they become speedily encumbered by the bored-out materials, which accumulate, to a greater or less extent, around the cutting edges or points of the tools, and are consequently difficult to work. Now, the nature of this branch of Mr. Gard's improvements consists in making the cutting ends or bits of an inverted, cup-like, or concave form, divided by a cross into four segments, with apertures leading directly from these segments into a hollow cylinder, or shaft, screwed into the neck of the bit, whereby the bored-out materials are removed out of the way of the cutting edges, almost immediately after they are detached from the perforated strata, or, at least, much sooner than by any other boring machine or tool now in use.

Figure 1 of the accompanying engravings is an external elevation of a borer on this improved plan; fig. 2, a sectional elevation of it; fig. 3, a bottom plan; and fig. 4, a plan on the line *a b*. A is the concave boring-bit. Externally, this bit is of a cylindrical form from the point, *c*, downwards, but from *c* upwards it is slightly tapered, there being a difference of about ½ an inch in the diameters at top and bottom. B is the cross by which the interior concave space is divided into four segments, E, E, E, E. The under, or cutting, edge of the circular part of the bit is made with a single bevel, inclining inwards, so as to throw all the borings inwards; but the under edges of the four arms of the cross are made with double bevels, and convex. The body of the bit is made of wrought-iron, but all the other under or cutting edges are of steel. C is the hollow shaft, which is screwed into the neck or tapered part of the bit; it may be of any convenient length. C^2 is a valve-seat, which is placed at the bottom of the recess into which the shaft, C, is screwed, and is kept down by that shaft when it is fixed in its place. In the centre of this valve-seat is a circular aperture, *f*, which communicates by four holes, *e, e, e, e*, with the concave segments, E, E, E, E. V is a ball-valve, which fits the circular aperture, *f*. As the concave segments, E, E, E, E, become filled with borings, which commonly takes place at each stroke of the borer, these borings are forced up through the holes, *e, e, e, e*, and their common outlet, *f*, into the hollow interior of the shaft, C (the ball-valve, V, giving way before them, and being kept from rising too high by a small bar across the tube); and the quantity forced up at each stroke is prevented from returning by the descent of the ball into its seat at the end of the stroke. On the shaft, C, becoming filled, the instrument is raised, in the manner to be presently explained, when it may be emptied, either through the top aperture, F, or (which the inventor rather prefers) by passing an iron rod up through one of the under holes, *e*, and thereby lifting the ball-valve, V, when the contents of the hollow shaft will flow or run out. F is an aperture for the escape of the air expelled from the hollow shaft, C. G, G, G, G, are holes for the admission of air or water into the concave segments, E, in order to prevent any vacuum being accidentally formed there.

II. The Working Machinery.—Fig. 5 is a side elevation, and fig. 6 an end elevation of the machinery by which the borer is lowered or raised. A A is a framework of wood, by which the machinery is supported; B is the lifting-bar, which is attached at the top by a moveable key, *c*, to a sliding cross-head, C^1, which moves in grooves in the framework. Near to the bottom the bar, B, passes through a fixed cross-head or guide, C^2. The moveable cross-head determines, of course, the length to which the lifting-bar is to be raised up, and consequently the height the boring tool (which is attached to it by the chain, D) is allowed to fall at each stroke made by the machine. E, E, are buffers, composed of caoutchouc, or some other like elastic substance, which form stops the further descent of the lifting-bar, and prevent any injurious effects being produced upon the framework by the ends of the cross-head. F is a shaft, which has its bearings in the framework, and carries the fly-wheel, G, the drum, H, the wiper, I, and the pulley, K—all of which are securely keyed to it. By the pulley, K, and a belt carried over it from some prime mover, the shaft itself is put in motion. The chain, D, by which the borer is connected to the lifting-bar, B, requires to be somewhat longer than the depth the hole is to be bored; the part of the chain which is not in actual use being carried over the drum, H, and then attached to some convenient part of the framework. L is a lever having its bearings on the framework at M; this lever is connected at the one end by a link, N, to the upper end of the lifting-bar, B, and from its other end there are suspended weights, O, which form a counter-balance to the increasing weight of the chain as the hole proceeds in depth. When the machine is to be worked, the shaft is made to rotate in the direction of the arrow. Each revolution of the shaft causes the wiper, I, to come in contact with the friction-pulley, P, which is attached to the side of the lifting-bar, and thereby lifts up the lifting-bar, the chain, and the borer. The instant, however, the wiper quits its hold of the pulley, P, the lifting-bar, the chain, and the borer, fall by their own gravity through the space they were raised up by the wiper; and thus the operation is carried on continuously. When the borer is to be raised to the surface to be emptied of its contents, the chain is disconnected from the lifting-bar, the connection being formed by means of a claw, which takes hold of any one of the links of the chain. The lifting-bar is then raised up to its highest point, by means of the wiper. The lever, R, is now brought under the projecting pin, S; and by applying power to the lever, R, the lifting-bar is raised up until the pulley, P, is without the range of the action of the wiper, which is then held in that position by a pin, T, inserted into the framework above the outer end of the lever, R. The chain is then drawn tightly over the drum, H, and the shaft, F, put in motion, whereby the borer is speedily brought to the surface. The utmost length of fall given to the borer is determined by the length of the wiper, I; but a shorter stroke may be given at pleasure, by bringing the cross-head, C^1, further down upon the lifting-bar, which is accomplished by means of the moveable key, C.—*Mechanics' Magazine.*

HERAPATH'S UNIVERSAL COAL-GAS BLOW-PIPE.



[Registered under the Act for the Protection of Articles of Utility. Mr. W. Herapath, of Bristol, inventor and proprietor.]

A is an elastic tube for the stream of air to the blow-pipe, B. When used with the mouth, it has an ivory mouth-piece; but, with the largest apparatus, it is connected with a double bellows, worked with a treadle. B is the blow-pipe jet; it can be made removable to vary the diameter of the jet; this is inserted into C^2, and, together, they form the gas blow-pipe in its simplest state, when, by its wood-screw B^3, it can either be fastened to a work-bench, to make a fixed vertical blow-pipe, or by its screw, C, can be fastened on an upright service-pipe, when it becomes a horizontal one with a circular motion. With the elbow-joint D, and placed on a vertical service-pipe, it has both the vertical and the horizontal motion—everything which can be required from an instrument confined to one spot. In order to make the blow-pipe universal, it is only necessary to place it on the candlestick-foot, and, by a vulcanised India-rubber tube, join it to the service-pipe, when it is portable from one part of the workbench to any other. This instrument seems likely to effect a complete revolution in such workshops as require heat to be applied over a space of a few inches by each operative; it can be used wherever coal gas is available, and its economy must be evident, as the stop-cock will shut off nearly all the gas as soon as heat is not required, while it is always ready for recommencement; and, when in action, every modification of flame from the cone to a brushy one of 3 in. in diameter, and 14 in. in length, may be obtained. From this variety of power there are but few operations that this instrument is unequal to; the chemist, the silversmith, the glassworker, the brazier, the gas-fitter, the tinman, and even the cook, can take advantage of it, and in a larger state, with a bellows worked by hands or feet, the blacksmith might resort to it. The inventor, Mr. Herapath, the eminent chemist, gives as familiar tests of its powers when urged by the mouth through a gas stream from a ⅜-in. gas service-pipe, that he can blow a flint glass bulb of 4 in. diameter and a moderate thickness; or hard-solder a brass tube 2 in. diameter, and 6 in. long; or melt 6 ozs. of fine silver in 1½ minute. He raised an imperial pint of water from 50° Fah. to 212° in an ordinary tin saucepan in two minutes, and a heavy copper soldering iron to the proper heat in one minute. It must not be overlooked, that this blow-pipe possesses an advantave over every other instrument of the kind, in admitting the use of both hands by the operator—as both the gas and the jet having fixed relations to each other, no hand is wanted for any other purpose than regulating the gas-cock when a variation of heat is wanted, and even that might be superseded by a crank on the cock, to be turned by the foot.—*Mechanics' Magazine.*

The Metallurgical Treatment of Ores.

[*Continued from May* 6.]—No. XVII.

Separation of Gold and Silver—Refining.—We have already discussed the various methods of separating impure gold and silver from their ores; it is now our province to examine somewhat in detail the processes in use for the separation of gold from silver, as nearly all the ores worked for either metal generally contain variable proportions of both: this is very observable in the analyses of native gold in a former paper. A few years since, an extremely important process, by which the above operation was much facilitated, was introduced. This process consists in the employment of sulphuric acid, which, by the aid of heat, dissolves both copper and silver, but leaves gold intact. The resulting sulphate of silver, when decomposed by metallic copper, furnishes silver in a state of purity; and, lastly, the sulphate of copper, purified by repeated crystallisation, finds its way into commerce as "blue vitriol"—so that, in this method of refining, the products are gold, silver, and sulphate of copper. The operation is very simple when suitable alloys are operated on. They ought to contain only a certain amount of copper, because, above a certain quantity, sulphate of copper ceases to be soluble in sulphuric acid. It also ought to contain but a certain per centage of gold—for, if that metal be in excess, the silver in the alloy is protected by it from the action of the sulphuric acid, and the resulting gold yet contains silver. Experience has shown that the best alloy for this operation contains 950 parts of silver to 50 parts of copper; as to the gold, it must not be present in larger proportions than 200-1000ths; but 1-1000th is sufficient to afford a profitable result. The alloy prepared in some such proportions must be fused, and then granulated, by pouring it while fluid into water. The resulting granulated alloy is dried, and one part of it treated with 3½ parts of sulphuric acid in a platinum vessel, placed in a suitable furnace. The vessel ought not to be more than two-thirds full, owing to to the effervescence occasioned by the evolution of sulphurous acid; the boiler is fitted with a platinum head, after the fashion of a still—the neck of which is adapted to a condensing apparatus, which may be varied in form, according to local circumstances. The size of the vessels may be such as will contain from 15 to 40 lbs. of the alloy. In the smaller vessels, two hours' boiling with sulphuric acid is sufficient to complete the operation; but, in the large vessels, three hours at least are required. On the introduction of this method of refining, the solution of the alloy was made in vessels of cast-iron; after a time, however, platinum boilers were used, as the latter metal more completely withstands the action of boiling and concentrated sulphuric acid. The quantity of acid used is much greater than is necessary to convert the silver and copper of the alloy into sulphates, as will be seen by the following calculation of the amount of acid necessary for the formation of sulphates in an alloy poor in gold:—

50 parts of copper require	.....	155	parts of sulphuric acid.
949 parts of silver "	.....	861	" "
1 part of gold "	.....	0	" "
1000 parts of alloy.		1016	parts of sulphuric acid.

But, in reality, 3500 parts of sulphuric acid are employed for 1000 of alloy—being an excess of nearly 2500 parts, which are necessary to hold in solution the sulphates formed, more especially that of copper. When the solution is perfect, the fire is withdrawn, and the whole allowed to stand for some time, so that it may cool, and allow the separated gold to completely deposit itself. The liquid portion is decanted, and the residual gold carefully washed with water; the wash waters are mixed with the sulphates already poured off, and the gold fused and cast in ingots. The acid liquor containing the sulphates is poured into a leaden boiler, containing water and copper scraps. On heating, the sulphate of silver is soon decomposed. The precipitated silver, in proportion as it is formed, causes the solution of an equivalent quantity of copper—that is to say, supposing 1000 parts of alloy, containing 950 parts of silver, had been operated on, 278 parts of copper would be required for perfect precipitation. The precipitated silver is collected and washed, and the wash water added to the solution of sulphate of copper. The silver is carefully dried in cast-iron vessels, then fused in proper crucibles, and poured into ingot moulds.

The acid solution of sulphate of copper is evaporated to the point of crystallisation in leaden boilers; it is then pumped into the crystallisers; and after the formation of crystal ceases, the mother liquor is re-evaporated, and set to crystallise. When no more crystals form, upon a repetition of the above, the mother liquor consists nearly entirely of sulphuric acid, and is known as "black acid," on account of its colour, which proceeds from particles of dust, &c. It may be purified by concentration, and is then again fit for parting; or it may be employed in the arts, where a pure and concentrated acid is not required. From 1000 parts of alloy, containing 50 of copper and 950 of silver, and require 278 of copper for precipitation, about 1385 parts of crystallised sulphate of copper ought to be obtained. This quantity of salt is larger, however, than that generally found in practice, because there is always a slight loss during the various operations. The above is an outline of the process; the following are the chief of its details:—During the operation, however, it may be as well to remark, very large quantities of sulphurous acid are disengaged, owing to the action of both silver and copper on sulphuric acid, and that some method of condensation must be employed. The best seems to be the passage of the eliminated gas through a canal containing water, which liquid is continually moving in a contrary direction to that in which the gas passes. This canal is furnished, in two or three places, with elevated cisterns, which furnish water in the form of rain, by means of finely-perforated bottoms. Such an apparatus is employed at the copper-works at Swansea for the same purpose.

M D'Arcet proposed, for the same purpose, another system of condensation. It consists in passing the vapours into an inclined tube of lead, in which the evaporated sulphuric acid begins to condense; it then runs into a reservoir, in which it is collected. The gas then passes in two successive chambers of lead, containing water, in which the condensation of the sulphuric acid is completed, and that of the sulphurous commenced, and from which it passes into a drum, revolving on a hollow axis, and filled with slacked lime; the sulphurous acid is there condensed with the formation of sulphite of lime. It is, however, not a convenient process, for where 2000 lbs. of alloy are daily treated, as much as 600 lbs. of lime are required to absorb the eliminated sulphurous acid. As yet, we have only treated known alloys; but others must also be worked—they can be well divided thus:—

1. Alloys very poor in copper and silver.
2. Alloys very poor in copper and gold.
3. Alloys very poor in copper, silver, and gold.
4. Alloys tolerably, or very rich in copper and silver, or copper and gold.
5. Alloys tolerably, or very rich in copper, silver, and gold.

The alloys under No. 4, being binary and tolerably rich alloys, are immediately employed by jewellers, and also for use at the Mint; we have, then, nothing to do with them. The poor alloys of copper and silver can be profitably worked in two ways; they may be treated by liquation, as already pointed out; or better still, by the action of sulphuric acid, and subsequent precipitation of the silver by metallic copper. The poor alloys of copper and gold can be used for fancy alloys of copper and gold, for monetary purposes, and jewellery, by the addition of a determinate quantity of gold. As to the rich alloys, we have already shown, that those containing 40-1000ths or 50-1000ths of copper, can be directly treated with sulphuric acid. At a lower standard—that is to say, when they contain from 20-1000ths to 30-1000ths of copper—they must undergo a particular operation—a kind of refining in the dry way. The alloy is fused in a crucible with some oxidising agent, as nitrate of potash. The ingots of alloy are heated to redness, broken into fragments, and the crucible charged with the broken pieces, and one-tenth of their weight of nitre added. The fire is then urged to the point of fusion; the contents of the crucibles are poured into an ingot mould, and a new operation immediately commenced. A very liquid slag, containing a large amount of potash, is formed during the process; besides the potash and silicates, formed at the expense of the crucible, the slags which have been examined by M. Berthier contain suboxide of copper, oxide of silver, and metallic silver.

M. Lebel employs these slags to saturate part of the excess of acid contained in the sulphate solution, formed by the action of sulphuric acid on the alloy in the platinum vessels. In this case, the excess of sulphuric acid transforms the suboxide of copper into metallic copper and sulphate of copper. The finely-

divided copper thus formed decomposes a portion of the sulphate of silver. The oxide of silver in the slag becomes sulphate, and is also decomposed by metallic copper. Berthier has proposed to replace the nitrate of potash by double its weight of crystallised sulphate of copper. The slag produced consists of sub-oxide of copper and oxide of silver. This slag, added to the acid sulphates, behaves as the preceding: the copper also plays a double part in the operation; it acts as a reducing agent in the precipitation, and as an oxidating agent in the dry refining (*poussée*).

Supposing, however, that the ternary alloy is too poor to be treated by nitre, and too rich for liquation, one of the following methods must be adopted:—The granulated, or bruised alloy, must be heated in a reverberatory furnace, in contact with air and sulphate of copper. It is necessary to heat for a considerable time, so that the copper of the sulphate, and part of that of the alloy, may be converted into oxide, which is then dissolved out in weak and hot sulphuric acid; the residue consists of a richer alloy, which must be again submitted to another such operation, or until it is rich enough for the dry refining. This method is but a variation of a process used by M. Lebel, and which has been employed for a considerable time at Freyburg. There the operation is carried out on impure silver from the distillatory apparatus.

The alloy is roasted on the hearth of a reverberatory furnace, which is formed of well-jointed bricks, placed in a bed of clay, and that on a layer of cinders. The furnace is furnished with two condensing chambers, to collect the metallic particles carried away by the current of air. The silver alloy is placed in the furnace in tolerably large masses, and it is better to form them into a tolerably high structure above the bed of the furnace, for there they absorb more oxygen, in a given time, than they do quite on the sole. The fire is at first so strongly urged as to bring the whole to bright redness; it is then cautiously managed, so as to keep up the highest possible temperature the contents of the furnace will bear without fusion. The masses are turned upon the hearth twice—once, two hours after the fire has got up, and the second time, about an hour and half after the first; the portions of alloy near the flue are brought near the bridge, and *vice versâ*, each time. The roasting lasts about five hours and a half, but the alloy remains twenty-four hours in the furnace. The roasted alloy is removed by a rake, and the last portions by a rough brush; it is then placed in a leaden boiler, and treated with sulphuric acid. When the alloy is in the boiler, the wash-water from previous operations is introduced, in the proportion of 15 parts to 8 of alloy. The mother liquor of the sulphate of copper, "black acid," is then added, and the whole heated to 140° for 10 or 12 hours. The upper solution is then run off, and replaced by water, which is boiled several hours, and then replaced by cold water to finish the washing. The whole of the liquors are allowed to repose some time, so that particles of silver may be deposited; they are then evaporated, and the sulphate of copper crystallised out. The alloy thus treated is roasted a second time, and treated with sulphuric acid, heating in the furnace for about six hours and a half; and with the acid, from 16 to 19 hours; two parts of sulphuric acid of commerce and eight parts of water, are employed for eight parts of alloy; and, lastly, it is roasted a third time for seven hours, and treated with sulphuric acid, in the proportion of one part of acid and five of water for eight of alloy. After this, the silver is placed in the roasting furnace merely to dry, and then fused in black-lead pots. If the silver now contains gold, it must be treated by sulphuric acid, as already described. [In next week's *Mining Journal* we shall describe the treatment of the ores of platinum.]

Mining Correspondence.

ENGLISH MINES.

BARRISTOWN.—Capt. T. Angove (May 5) reports.—The stopes in the adit level still produce about 1 ton per fm.; the pitches, in the back of this level, look much the same as last reported. In the eastern flat-rod shaft we are down 15 fms. 3 ft. from surface. We have commenced sinking the shaft east of Nangle's to take the lode about 3 fms. deeper than Nangle's. The pitches in the old mine are producing very little ore at present. We have driven about 3 fms. east from bottom of Slob shaft—there is no change in any other part of the mine.

BEDFORD UNITED.—Capt. Thomas Ellery (May 10) reports—At Wheal Marquis, the lode in the 90 fm. level, east of the sump winze, is 3 ft. wide—good saving work; the lode in Hodges's rise, in this level, is 3 ft. wide—saving work; the stopes in the back of this level are worth 40*l.* per fm.; in this level west, the lode is without alteration. In the 80 fm. level east, the lode is 2 ft. wide, producing good stones of ore. There is no alteration in the 70 fm. level east, or in the 47 fm. level east. The sumpmen have commenced casing and dividing the down shafts, and driving cross-cut in the 90 fm. level. At Wheal Tavistock, the lode in the 47 fm. level, west of Phillips's engine-shaft, is 2 ft, wide, producing saving work—we are now erecting a whim at this shaft, for the purpose of drawing away the stuff. The lode in the 25 fm. level, east of the south engine-shaft, is 5 ft. wide, producing good stones of ore; the lode in the adit level is 15 in. wide, composed of spar, mundic, and spots of ore.

CALLINGTON.—Captain J. T. Phillips (May 8) reports—We have commenced the north engine-shaft below the 100 fm. level, and have set 10 fms. to sink for 175*l.*; in this level, driving south, the lode is intersected and hove by numerous small cross branches; these have the appearance of a large lode, not regularly defined, with a north underlay; in the level above these branches are 3 fms. wide, and the ground hard about them, so that we do not expect to see the silver-lead lode, in the 100 fm. level, for some weeks to come. In the 90 fm. level we are opening ground that will pay for working, at one-half tribute; in the 90 east we calculate seeing the great cross-course in about 12 fms., and have set to cut the same at 8*l.* 10s. per fm. In the 70 east the lode is 3 ft. wide, with a great deal of mundic and spots of copper ore; the stopes continue to look well; we have been driving the lode in the past week. In the 50 east the lode is 5 ft. wide—hard and poor; from the inclination of the ores in the stopes, we calculate on having some few fathoms to drive before getting into the same rise; in driving south, on the cross-course, the ground is very soft. In the 125 fm. level north the lode is producing silver-lead ores. In the 112 fm. level north we are opening tribute ground, and soon expect to cut the channel of elvans; in the south end the lode is intermixed with silver-lead ores. In the 100 fm. level north we are opening ground of a very promising character, and calculate on the backs to pay for working on a low tribute. In the 90 fm. level the lode is producing rich work, and the backs will pay for taking away at a low tribute; in the winze, sinking below this level, no lode has been taken down. We intend to communicate with the 100 first, and calculate it will lay open a valuable piece of ground.

CARADON WHEAL HOOPER.—Capt. John Seymour (May 8) reports—I am happy to inform the shareholders in this mine, that our prospects are daily more encouraging. On Saturday last, on examining the west end, on the caunter lode, I found that the branch, which came in about 3 fms. above the present bottom, had drained the lode dry from water, which shows a good edge, and proves that the lode is large and hollow. Yesterday, I thought proper to commence sinking a winze in the lode, in the bottom of the 50; this is being attended to, and the appearance of the lode is found to be such as any practical miner can wish to see—except a large course of copper; its composition is large, consisting of mundic, prian, copper, peach, can, and quartz—everything that is congenial for copper; it is a rich looking lode; there are many pretty branches which we have passed through in the south cross-cut—all of them containing copper, can, mundic, &c., making towards the main lode west; and in depth, I am daily in expectation of seeing a good course of ore in this winze; there cannot be a more promising lode seen in the two counties. Capt. Hambly was here yesterday, and inspected the mine for Mr. Knight, of Truro, who has 18 shares: he says, that he never saw a more promising lode—that he should not be surprised if we should shortly cut a course of copper here in this winze, 4 or 5 ft. wide. I think we are approaching near the saw-pit lode; from the indications daily appearing in this end, I have every reason to expect a good lode here; we are daily meeting with coppery heads, and small branches containing copper; we shall commence driving in the beginning of the coming week to the bottom of the shaft, which will be 8 fms. below the 50; this will be about 12 fms. deeper on the course of the lodes. I should not drive until we sunk 3 fms. deeper; but the ground being hard at present, and having so much water to contend with, which is proceeding from between the granite and killas, it is with much difficulty that the engine-men can get to work. After we have cut a plat, and put in a penthouse, we shall have a dry shaft, when we shall be able to sink 3 fms. to 1, under present circumstances; we shall cut the branch, before alluded to, in about a fortnight after we commence driving, which will, as I hope, so drain the lode, that the men may sink this winze right on to the 58 without delay. We have commenced driving a cross-cut to the 50, south-west of the shaft, to intersect Daw's lode, which is from 4 to 5 ft. wide, 30 fms. to the east of this, and orey throughout, with some good saving work, and promising an improvement; on the whole, I think our prospects are as good as any other infant mine in the two counties. What I have said to the shareholders, I cannot but repeat—hold on your shares, and you will be rewarded, if ever adventurers were who have speculated in mines.

CARTHEW CONSOLS.—Captain H. F. Stephens (May 8) reports—Our shaftmen have been fully engaged in cutting down, securing, and timbering old engine-shaft, and are getting near the adit, performing their work very satisfactorily—a job which will endure for many years. There is very little alteration in the south end since my last report. I have set the engine-house and stack to build to the same party (of masons) who built Wheal Barbara engine-house, &c., and, I believe, you were well pleased with the execution of that work; I have engaged to pay them 1s. 6d. per perch for their labour—they to mix and make up their own morter, erect their own scaffolding, &c.—and this, I consider, reasonable for the work. I hope, in the course of a few days, to meet with such stones as will enable us to commence with the building.

CARWINNING HILL.—Captain John Cock (April 22) reports—Since my last report, the lode in the winze is much improved; the ore course is worth from 80*l.* to 100*l.* per fm., and is gradually improving every foot we sink.—T. Paton, Esq., Dalry (April 27), writes—Enclosed is the analysis of the samples of ore I sent to Glasgow; and I am sure you will be pleased at the result. The ore was taken indiscriminately from the pile broken from the winze, and rammed upon a shovel in the ordinary way. The ore in the winze is still improving.——Capt. John Cock (May 1) reports—Since my last report, the lode in the winze is much improved in quality; we judge it to be worth 160*l.* per fm.

Chemical Analysis of a Sample of Copper Ore (Sulphuret of Copper), forwarded to my Laboratory by T. Paton, Esq., Dalry.

SPECIFIC GRAVITY, 4·83.

Copper	Per cent. 77·0	Cwts. 15	1 16 12 8-10ths.
Silver	0·195	0	0 4 5 9-10ths.
Iron	1·1	0	0 24 10 2-10ths.
Sulphur	18·26	3	2 17 0 4-10ths.
Carbonate of lime	1·765	0	1 11 8 6-10ths.
Silica	1·68	0	1 9 10 1-10th.
	100	One Ton.	

This ore contains 69 9-10th ounces of silver per ton.

FREDERICK PENNY, Ph. D., Professor of Chemistry.

CWM ERFIN.—Capt. S. Nicholls (May 6) reports—We are now down 4 fms. in the shaft, with some spots of ore in the lode; and I am in hopes it will improve in a short time; the east end has some spots of ore in the lode, similar as when last reported on; the stopes, west of whim-shaft, are not looking so well as last week, worth 6 cwts. of lead to a fathom—but I think they will improve again in a short time; the stope, east of whim-shaft, is still worth 1 ton of lead to the fathom; the stopes, west of the east shaft, is worth 7 cwts. of lead per fm., and is similar to last report. We shall have the whim on the engine-shaft ready to work very soon—I think in about 10 days; so that we may begin to make ready to sink the engine-shaft next month, if necessary.

DEAN PRIOR AND BUCKFASTLEIGH.—Captain H. Choake (May 10) reports—Having made the necessary preparations, we have this day commenced sinking the engine-shaft below the 30 fm. level—price for sinking, 12*l.* per fm. I stated in my last report, that I was of opinion there was more of the lode to the south, in the 30 fm. level, which I find, in cross-cutting, to be the case. We have laid open the south part 3 ft., which is composed of a hard capel and mundic intermixed. The north part of the lode is 4 ft. wide, producing some stones of ore. In driving west some 10 or 12 ft., from the present appearances, the two lodes will intersect each other, which is a favourable indication. We have taken the men out of the 20 end west for the present, and have put them in the bottom level, in order to extend the level east and west of the cross-cut. In the end driving east, in the 30 fm. level, the lode is very much improved, and producing fine stones of ore.

DEVON AND COURTENAY.—Captain N. Seccombe (May 9) reports—I have suspended the ends driving north and south on the cross-course, in the 40 fm. level, for the present, and put the men to open on the two lodes which have been intersected west of the cross-course; these lodes appear to be 1 ft. wide each, composed of mundic, peach, spar, and ore. In the end driving east, on the south lode, the lode is 15 in. wide, impregnated with mundic and spots of copper ore. The shaftmen continue to sink the engine-shaft with all possible despatch, the depth below the 40 fm. level being now about 10 fms.

DRAKE WALLS.—Capt. R. Williams (May 8) reports—In Brenton's engine-shaft there is no alteration since my last. The stopes below the 40, east of Brenton's, are improved; the stopes, west of machine, below the 40, are tinny; in the stopes, east of machine, below the 40, there are good branches. In machine shaft, sinking below the 50, there are good branches. In the end and stopes, below the 33, there are very good branches; the stopes, east of footway shaft, are tinny, not rich; the new engine-shaft, sinking below the adit, is saving work; in the north lode there is no alteration. Our last month's tin weighing was 15 tons 15 cwts. 3 qrs. 8 lbs., and sold for 547*l.* 11s.

GREAT ROUGH TOR CONSOLS.—Capt. J. Hitchins (May 5) reports—Our progress in sinking the shafts in the past month has been very good indeed. In Thomas's shaft we have sunk 2 fms. 5 ft. 6 in., making the depth from the level of the adit 20 fms. 3 ft.; and in Morris's we have sunk 4 fms. 0 ft. 6 in., making this shaft from the same level, 23 fms. 1 ft. The ground through which we are sinking is a beautiful light blue killas, intersected by several small branches, all of which are more or less metalliferous, and their general dip or declination is towards the main lode, or what is generally termed droppers to it; in fact, the ground within this last month has very much improved indeed, particularly in Morris's shaft, both as regards its mineral character, and being favourable for sinking through. Should this state of ground continue in Morris's, I have very little doubt of being able to reach the 30 fm. level, or the point fixed on for the first cross-cut to the lode, in two months from this time. The engine, and machinery attached to her, continue to work very regular and effective. We have had a great deal of water to contend with, but our pit-work is of sufficient capability to keep it under perfect command.

GREAT MICHELL CONSOLS.—Capt. T. Richards reports—The lode in the sump-winze contains mundic, fluor, capel, spar, and ore, and is, in its general character, very promising. We have about 2 ft. to sink to get down for the next intended level (45), and hope to commence the driving of the same next week. Judging from the level now being driven in the 35, and ground laid open therein, where we have opened some good tribute ground, that when the 45 is extended in under sufficiently far enough to take the ore ground gone down in the bottom of the 35 fm. level, there is every reason to believe that a good course of ore will be met with. In the 35 fm. level (above alluded to), west of the sump-winze, the lode is just as last reported, and containing mundic, capel, spar, and ore, laying open tribute ground. The pitch, working in the back of this level, at 6s. 8d. in 1*l.*, is yielding tolerably good returns. We intend sampling a parcel of ore on Monday, the 15th inst., from 50 to 60 tons.

HOLMBUSH.—Capt. W. Lean (May 9) reports—We have set the 132 fm. level to drive west of the diagonal shaft by six men. At present we are not in a position to sink the shaft at one and the same time, but shall resume it the first opportunity that presents itself. The lode in the 120 fm. level south is 4 ft. wide, composed of spar, white iron, and lead, worth 6*l.* per fm.; the north end, in this level, is for the present suspended. The lode in the 110 fm. level south is composed of hard spar and lead, worth 5*l.* per fm. The lode in the stopes in the back of this level being so very large, and the lead so disseminated through it, we thought it advisable to set it on tribute, which we have done in two pitches, with four men in each, at 10s. in 20s. on the value of the lead. The lode in the 100 fm. level south is 2½ ft. wide, composed of soft spar and lead, worth 5*l.* per fm. The lode in the rise, in the back of this level, is 3 ft. wide, composed of soft spar and lead—saving work. The lode in the winze, in the bottom of this level, is 18 in. wide, composed of spar and stones of lead—saving work. The flap-jack lode, in the 100 fm. level east, is 3 ft. wide, composed of spar, mundic, blende, and stones of ore, much kindlier than we ever saw it before. The lode in the 90 fm. level south is 2 ft. wide, composed of soft spar and stones of lead—saving work. By this post you will receive the setting list, from which you will perceive the number of tutwork men and tributers we have at work, &c. We have sampled, this day, a parcel of silver-lead ores (computed 24 tons), samples of which have been sent to the different lead smelting companies, to be tendered for on or before the 17th inst.

KIRKCUDBRIGHTSHIRE.—The agent (May 6) reports—The sumpmen have cut through the north lode in the 50, which is 2 ft. wide, worth half a ton of lead per fm.; they are now rising against the winze, the ground is favourable, but the lode is not taken down yet. The lode in the 40 end, west of Stewart's shaft, is 3 ft. wide, yielding half a ton per fm.; the lode in the 40 end, east of Keith's, is improving, it is now 2 ft. wide, producing one-third of a ton per fm.; the lode in the 40 end, west of Keith's, is 2 ft. wide—the ground is favourable, with spots of ore; the lode in the 40 end, east on the caunter, has improved again this week; it is now near 3 ft. wide, and a good branch of lead coming in it. The 30 end, west of Keith's, has still a large kindly lode, yielding above half a ton per fm.; the 30 end, east of Stewart's shaft, lode 3 ft. wide, with small stones of lead, and ground still improving in appearance. The men are making fair wages on tribute. We hope to send off another cargo of lead next week.

LEWIS.—Capt. S. Noell (May 6) reports—The lode in the 70, west of sump-whim shaft, is 18 in. wide, yielding good quality tinstuff; the ground in the 70 south is hard; we expect to cut the south branch in about 6 ft. further driving. The lode in the 60 east is 2 ft. wide, worth 4*l.* per fm.; the lode in the 60 east, on south branch, is 6 in. wide, worth 5*l.* per fm.; the lode in the 60 west, on south branch, is 2 ft. wide, worth 35*l.* per fm.; the stopes, in the back of this level, are producing excellent quality tinstuff. The lode in the 50 east is 4 in. wide, worth 4*l.* per fm. The lode in the 40 east is 6 inches wide worth 5*l.* per fm.

MENDIP HILLS.—Capt. F. C. Harpur (May 8) reports—We find the slag stuff, which we are at present removing to the dressing-floors, is somewhat improved in quality; the beds through which we are now extending the cutting are between 12 to 13 ft. thick; and, from the appearance of the stuff, I hope shortly to see a further improvement, it not being intermixed with so much rubbish as formerly. We have worked the furnaces during the past five days, and have sufficient slags now prepared to keep us smelting the greater part of the present week. The lode in the 38 fm. level, south of shaft, continues about 3 ft. 6 in. wide, composed of flookan, spar, and iron-ground, easy for driving.

TAMAR SILVER-LEAD.—Captain James Sprague (May 8) reports—In the 175 fm. level we have finished cutting the plat, &c., and commenced driving north and south in this level. In the 160 end, south of the shaft, the lode is 2 ft. wide, 1 ft. of which is saving work. In the 145 end the lode is 3½ ft. wide, composed of capel, spar, and ore—work of a coarse quality; in the winze, sinking in the bottom of this level, the lode is 2½ ft. wide, rich work. In the 135 end the lode is 1 ft. wide, producing a small quantity of ore; in the winze, in the bottom of this level, the lode is 15 in. wide—9 in. of which is good work. In the north mine, in the 70 end, the lode is 1 ft. wide, composed of can and ore; work of a promising character. In the 50 fm. level the lode is 2 ft. wide; good stamp work. We sampled, on Saturday, the 6th inst., computed 84 tons of rich silver-lead ores.

SOUTH WHEAL TRELAWNY.—Capt. W. Jenkin (May 10) reports—Snell's engine-shaft is sunk 30 fms. under the adit, and we have commenced driving the cross-cut west of Snell's engine-shaft.

TINCROFT.—Captain Peter Floyd (May 8) reports—On Highburrow lode, the 142 fm. level east is worth 10*l.* per fm. The stopes, in the bottom of the 110 fm. level, are worth 20*l.* per fm. The 90 fm. level west, on Chapple's lode, is worth 12*l.* per fm. The 80 west, on the same lode, is worth 9*l.* per fm. At North Tincroft, in the 100 fm. level east, we have cut the north wall of the lode, but have not had as yet sufficient time to cut through it; in our next report we shall be able to say more about it; the 100 fm. level west is worth 5*l.* per fm. The 90 east is worth 10*l.* per fm.; in the 90 west the lode is 2½ ft. wide, with good stones of copper ore. In the 80 east we have set a rise, the lode being worth 14*l.* per fm. On East Pool lode, the 80 fm. level west is worth 10*l.* per fm. The 70 west is worth 8*l.* per fm.; the winze, in the bottom of this level, we have suspended till the 80 fm. level is home, to let down the water. We have set to drive east and west, on the southernmost lode, in the 58 fm. level, and cut from Chapple's shaft; both ends have been taken at ½d. per fm. for 2 fms. in each end. We have also commenced drawing the water out of Stainsby's shaft; also, set a bargain to eight men, to case, divide, and put a footway in Blight's shaft. Also, set the 60 fm. level, to drive east on North Tincroft lode, to four men. We are preparing to set the other bargains, and will do so as early as possible.

TRELEIGH CONSOLS.—Capt. William Symons (May 6) reports—In the 120 cross-cut, north of Christoe's, we are driving to cut the lode. In the rise, above the 100 east, the lode is 18 in. wide, with stones of ore, not to value. Garden's shaft, below the 100, is still in the country; in the 100, east of ditto, the lode is 2 ft. wide, with but little ore; in the 100, west of ditto, the lode is disordered in the cross-course—in general, spar and mundic. In the 90, west of ditto, the lode is 20 in. wide, with stones of ore only. In the rise above the 80 the lode is 18 in. wide, producing good stones of ore. In the 70, west of ditto, the lode is 18 in. wide, very promising, worth about 4*l.* per fm.; the winze below the 70 (new) west will be sunk on the rise, above the 80 fm. level—the lode is small. In the 60, west of ditto, the lode is 3 ft. wide, a little improved, worth 8*l.* per fm. In the 50, west of ditto, the lode is 18 in. wide—orey, but not to value. In the adit, east of Wheal Parent, the lode is 2½ ft. wide, yielding good stones of ore, and very promising. The adit, north of engine-shaft, is to cut Wheal Orphan lode; we believe it is very near at hand.

WEST WHEAL MARIA.—Capt. T. Rodda (May 9) reports—The western engine-shaft is down below the 64 fm. level 8 fms. 5 ft., the ground in which for sinking is much the same as last reported. The south lode, in the 34 fm. level, west of Vivian's shaft, is 3 ft. wide, composed of capel, spar, mundic, and spots of ore occasionally.

WHEAL ADAMS.—Capt. J. Prince (May 9) reports—We have been unsuccessful in getting through and securing the crush in the new engine-shaft, since which nothing has prevented our getting on well. We think there is every probability of finding the remaining part to clear in a tolerably good condition, and, if so, we shall reach the 60 in about a fortnight from this time. The air in the 50 fm. level continues bad; but we are making every effort to improve it, and we shall, no doubt, effect the object; the quartzose lode continues large and promising, with lead disseminated throughout it; but it does not contain quite so much in sight as it did when last reported. We have resumed raising gossan, and shall get another cargo as soon as possible. The gossany part of the western silver lode, discovered a short time since, has not been sufficiently developed to ascertain the extent or value of it, but that already assayed is of more value than any we have before seen in this mine. Although this is so far encouraging, we do not place much dependence in the produce of samples taken from the lode; we propose, therefore, breaking a few tons of it, and taking a few samples from the bulk, which will be the best criterion of the value of the whole. I much regret that a vessel has not yet arrived, to take the parcel of lead ore to the Tamar Smelting-Works. We propose sampling another parcel on Thursday.

WHEAL BARBARA.—Captain H. F. Stephens (May 8) reports—By this night's mail, I shall forward you the plan of this mine, from which you will easily ascertain the work done; whilst the dotted lines will show you the work proposed to be done, in the event of which, from present appearances, I think, and have every reason to believe, something good will result, though, at the present moment, the ground continues hard at Williams's shaft, without much alteration. At this point the ground appears to be harder than at any other point in the mine, and, as a natural consequence in such ground, the lode is much pressed, and found to be small; and, whilst we are giving for sinking this shaft 10*l.* per fm., we are sinking Truscott's shaft (which is of much larger dimensions) for half of that price, and have a lode, of a very beautiful appearance, 5 ft. wide. In going down with this shaft, we find the lode gradually divesting itself of superfluous matter—such as killas, capel, &c.—and is partaking more of soft spar and flookan, the south part of which is well spotted with lead and copper ore; and at the present bottom, which is about 3½ fms. below adit, and about 9 fms. below surface, it presents a much more defined, and decidedly more pleasing, appearance than I have ever witnessed before, and I cannot but think, that in the event of the work being done, which is proposed in the plan, that we shall be in receipt of much ore; and had the ground been as favourable in Williams's shaft as in this, I doubt not we should have been in this pleasing situation before now; and I hope we are not far from it. We are pressing on the men as fast as possible to get at that very desirable point, and have so far curtailed our expenses, as will keep them for the present, and ensuing months, within 100*l.* per month, which cannot but be considered very low for a mine where we have a steam-engine at work.

WHEAL TREHANE.—Capt. S. Richards (May 4) reports—Kelly's lode is now down 8 fms. 2 ft. below the 45 fm. level—ground at present rather hard; the lode in the 45 fm. level south is producing 10 cwts. of lead per fm.; in this level north the lode is 3 ft. wide, and is looking better than for some time past, producing about 9 cwts. of lead per fm.; the lode in the rise, in the back of this level, and in the winze, sinking below the 35, is 2½ ft. wide—not so good as it has been, worth at present about 4 cwts. of lead per fm.; the winze is holed with a borer, and as soon as the ground is open, which will be in a week from this time, we shall commence stoping both north and south of the same; the stopes, in the back of the 35 fm. level, both north and south of Phillip's shaft, are, on an average, yielding about 7 cwts. of lead per fm. In the backs of the 30 and 20 fm. levels we are breaking some tolerably good work; in the 30 fm. level we are in course of driving a cross-cut west, in search of other lodes; we have driven 7 fms. 3 ft., and ground favourable for driving. The next sampling will be on Saturday week next, of about 65 tons of good quality ore.

WHEAL TRELAWNY.—Capt. John Bryant (May 9) reports—The ground in Phillips's shaft is much as usual—clean killas. The lode in the 62 fm. level south is 5 ft. wide, composed of spar, white iron, can, and lead, worth 4*l.* per fm.; in this level north the lode is 2 ft. wide, composed of spar, capel, can, mundic, and lead, worth 8*l.* per fm.; the same will apply to the 52 north. In the 52 fm. level south the lode is large, producing stones of silver-lead ore, and looks promising for an improvement; the lode in the winze, sinking under this level, is worth 12*l.* per fm.; the stopes in the back are not, on the whole, looking so well as when I last reported. The lode in the 42 fm. level north is 2 ft. wide, composed of spar, mundic, can, and lead, worth 5*l.* per fathom; the stopes in the back of this level are producing a fair quantity of ore. There is no material change in the stopes in the back of the 32 fm. level, or in the bottom of the 22, since my last. The ground in Trelawny's engine-shaft is much as usual. In driving the 22 cross-cut east we have latterly met with several small branches and floors of spar, containing a quantity of mundic, with spots of lead. At the north mine, the 30 fm. level is now extended north under Smith's shaft, which we find, by dialling, will take the lode in this level; the lode in the rise, which is 2 fms. above the back of this level, is producing some good stones of lead. Smith's shaft is sunk 17 fms. from surface; the ground is harder than it has been, but we have not near so much water to draw.

FOREIGN MINES.

ALTEN MINES.—Mining report from the 8th to the 19th April:—

Raipas.—The 20 fm. level, easterly from Monk's shaft, is commenced, but as yet in dead ground; the metalliferous limestone intersected in the 20 fm. level westerly, was of short duration; the jasperry slate having again intruded itself, has for the present disappointed us in the favourable expectations we were induced to hold out in my last report. The workings in the 5, 10, and 15 fm. levels, are still in a hard quartzose stratum; the prospects are good, but the men make very little progress in such hard ground. We hope shortly to be able to commence the 20 fm. level, for the sake of exploring Labouchere's lode, near Monk's shaft. Carr's lode continues equally fluctuating; it is at present poor and unpromising, but past experience leads us to expect that this inconvenience will be but temporary. The pulleys and machinery are erected in the run, in shaft No. 2. We are now engaged in clearing the snow and rubbish out of the old workings, and hope to be able to re commence operations in the old 5 fm. stope in the course of next week, when we may expect increased returns of ore of an improved quality. By reference to the accompanying note of ore delivery to the smelting-house for the month of March, it will be perceived that the per centages of the last returns from this mine have improved, the prills being 26 per cent., and the best dredge 16.

United Mines.—The prospects of the workings on Ward's lode have materially improved, and particularly on the 10 fm. level, where the best part of the lode has struck off from the main branch. We are now using every despatch in exploring this discovery, and hope the result will prove as permanent as it is at present profitable. Such promising indications have not been seen in this part of the mine for many years past. The generality of the workings on Ward's lode have, within the last few days, shown visible signs of improvement, and we have every reason to anticipate increased returns during this month. At Woodfall's, we are still frozen out of the mine, with the exception of one tribute pitch working in the pump-sink, where the ore is good, but the ground is difficult and dangerous for working. From Hoskins's lode, the tributers continue to make some small returns of ore of a superior quality.

Ryper's.—Several of the old workings are now resumed on tribute; the prospects are still depressed, but we expect the returns will be sufficient to cover the present reduced expenditure.

Mancen's is also working on tribute; another branch of the lode has been found west of the cross-course; the returns are small; but the prospects have improved, although, as yet, we cannot venture to offer any opinion on their permanency.

Michell's.—We are still frozen out of almost all the workings; one pitch only is carried on in the back of the 10 fm. level, from which a fair return of good ore is obtained.

Old Mine.—The tributers continue to make good returns, and the prospects of the several workings are still very promising. I would again beg to drawn your attention to the proposition, made in my last report, for draining the bottom workings by means of a syphon. Employment might then be found for many of our workpeople in the ensuing autumn and winter; and, judging from the result of the former workings, I have every reason to expect that profitable returns will be made.

New Lodes.—The only place at present at work, under this head, is in Mathisen's dal where an improvement has lately taken place. The stimulus given the tributers last month, has enabled them to open more ground; and the result has been favourable, and fully answered our expectations. The accompanying delivery note for March closes our 12 months' proceedings. The total delivery of copper to the smelting-house for the year, and being the produce of our own mines, amounts by assay to about 121½ tons—being about 4¾ tons above the total monthly estimates. Our mining operations, during the transition from winter to summer, will again experience a check; but, by increased exertions during the latter season, we shall be able to make good any falling off in the next three months' returns.

IMPERIAL BRAZILIAN MINES.—*Gongo Soco, Feb.* 23.—I am much obliged for the information you are so good as to give me respecting the quality of Bananal gold; we were aware that it was better than that of Gongo, but the superiority is not so great as we had been led to expect. The greater part of our produce in Gongo, for many months past, has been obtained from stamping the refuse matter, formerly scattered over the surface; as soon as we have removed all the best of this, we shall try washing away the shallower portions of the jacotinga formation. The pumps will be very welcome; but I trust that the fears of the Rio agents, as to the unmanageable weight of some of the pieces, are without foundation; if otherwise, the founders ought to repay all the extra cost we must incur, in consequence of their neglect of my caution as to weight. My last respects will assure you, that no precaution has been wanting on my part to ensure speed and economy in the transit. Gongo Mine, I regret to say, presents nothing new. At Bananal, the water has at length overpowered our machinery, and we are unable to drain the mine to the 6 fm. level. The sinking of Walker's shaft goes on slowly, but regularly, and we have now but little fear of further interruptions. The adit from the great sink advances rapidly towards Walker's shaft, and from the shaft downwards it continues in favourable ground. We were compelled to work in this spot two Sundays, to avoid risking all we had there; but this necessity is at an end. At the other three stations in this level, the rock continues hard, and our progress is, therefore, slow. The new water-wheel advances towards completion, and our new houses for the labourers will allow the removal of, at least, 50 more from Gongo during the ensuing month. The accompanying return of gold from the stamps is the produce of very irregular and interrupted working for a considerable time. The machine itself is small and old, and the water which works it is often required for other more important purposes.

March 3.—I believe it is impossible to be more busy than we have been, and still are, at Bananal; every thing within our means, and, I may add, much more than I had dared to expect, has been done. I need not recapitulate the contents of my intervening letters, and in a later part of this letter I will allude to our present progress. We are all much obliged by your cheering and gratifying approbation and encouragement. The recent produce of Gongo will have shown that some gold yet remained. I dare not, however, encourage any hope of our discovering any such bunches as gladdened your early operations—the formation has been too much ransacked in past years to allow any such prospects to remain. Gongo, I regret to say, presents nothing new worthy of notice. The drought has returned with redoubled force; and in the height of the last dry season, we had nearly as much surface water as we now have. We, however, still continue to sink Walker's shaft, though but slowly, as our draining power is scarcely so great as we require; and we have not yet entirely penetrated the soft formation, which has given us so much trouble. The deep adit is in progress from the great sink, both towards Walker's shaft, on the one hand, and towards the carpenters' shop, on the other, and goes on well in both places. In the same level, from Walker's shaft downwards, we are still skirting the soft stratum, without daring to dig into it. In the other three stations we are getting on very well, and in two or three days, all that portion below the adit shaft will be open, and we shall no longer need the pumps in it. Our stores are now lodged on the mine, and the whole of the store-room will soon be in use. The tile-yard is at work, and tiles from it will be ready this day; our new row of labourers' houses will, consequently, be quickly completed. Preparations are being made for your chief officer's residence, but our great force of carpenters is now employed on the rods and other preparations for the new pumps, for which we have been so long and so anxiously waiting. Walker's new water-wheel is now ready for use. We shall, during the present month, reduce our car hire to but little more than half of what it was in February; our woodcutters, too, will decrease, but, perhaps, not in quite so large a proportion, as the weather serves for cutting, and the timber will get seasoned by lying. No gold return for the past 10 days.

Gold return from Jan. 1 to March 2:—Gongo, 31 lbs. 6 ozs. 4 dwts.; Bananal, 3 lbs 1 oz. 8 dwts.=34 lbs. 7 ozs. 12 dwts.

NATIONAL BRAZILIAN MINES.—*Cocos, March* 4.—Mr. Collett arrived on the Serra on the 26th ult., and appears to be satisfied with the state of affairs and prospects of success. Mr. C. is entering into a minute examination of the several works with great spirit, and every possible facility has been afforded that gentleman, to enable him to make himself master of our position. Mr. Collett will not probably leave for the Rotalo for a few days, as he is suffering somewhat from the effects of a fall.

Extract from Capt. Hitchins's Report.—At the sink, which is a continuation of Oxenford's stope, below the shallow adit, on one of the Bandeira veins, the lode has become more encouraging within the last few days. At this point there are a great number of people employed, and a considerable quantity of ore has been extracted, but which, judging from the samples taken, has not been so productive as might have been expected. At the lower part of the excavation, however, near the footwall of the layer, the gold is frequently visible in the stone; and we hope, therefore, in the course of a few days, more favourable returns will be obtained.

Produce from Feb. 12 to March 2 (19 days):—Cocaes, 14 mks. 2 ozs. 0 oits. 12 grs.; Cuiaba. 6 mks. 7 ozs. 3 oits. 36 grs.=21 mks. 1 oz. 3 oits. 48 grs.

ST. JOHN DEL REY MINES.—*Morro Velho, Feb.* 7.—Produce for Jan., 14,201 oits, =135·514 lbs. troy, from 3973 tons of ore, yielding 3·574 oits. per ton.—You will perceive that the last 11 days' stamping has improved a little on that of the preceding 20 days; still the falling off from the month of Dec. is very serious. After unceasing investigations into the cause of this deficiency, I now believe they are twofold; the one of a merely temporary nature—the other, I fear, more permanent. The first is attributable to the epidemic, which attacked so many of our people, and which, in conjunction with the idleness of the Brazilians during the Christmas holidays, reduced our borers to 115; reducing, at the same time, the supply of stone from the mine in proportion. It is true, that, after the first 10 or 12 days of the month, the quantity of ore supplied by the mine rapidly increased, so that eventually the number of tons spalled and sent to the stamps in January became nearly equal to that in December; but, owing to the early deficiency, the first 17 days of January had passed before any picking worth mentioning could be attempted; almost every stone, good or bad, was sent to the stamps, and the deterioration in the value of the ore stamped cannot be estimated at less than 500 oits. The second, and, I fear, more permanent, cause of decline, is a decided change for the worse in the West Cachoeira lode. You will see that Capt. Treloar, in the 13th paragraph of his mine report, states that the principal part of the 530 tons of ore furnished, in January, from that locality, was "a poor blackish quartz," and which, as far as I can collect, is supposed not to be worth more than 2 oits. per ton—if even so much; so that the deficiency from this cause cannot be rated at less than 1000 to 1100 oits. These two, together, account for a falling off in the month's produce of 1500 to 1600 oits.; fortunately, the first no longer affects us to any serious degree—but the second, I am sorry to understand, is still in full force, and must proportionally affect this month's produce. This falling off, however, in the value of the West Cachoeira lode, should it even prove permanent, will but serve to animate me in hastening the completion of the new stamps, and the other works connected therewith, and which, when once fairly at work, will compensate (and far more than compensate), by increase of quantity, for what we seem likely to lose by deterioration of quality.

Cost for January, Rs. 29,216 714, at 27⅜		£3378	3 8
Produce	14,201 oits.		
Less duties, 7 per cent.	994 „		
	13,207 oits., at 7s. 6d.	4952	12 6
Profit		£1574	8 10

This cost is unusually heavy, arising from a variety of concurring circumstances:—

1.	The expense of the large number of miners, &c., sent out per the *Antelope*, still figure in this month for	*Rs.* 1100 000
2.	Correiro's (or Parker's) 6 months' account (will not occur again till July cost)	470 000
3.	Mr. Pigot's pictures	432 000
4.	Quicksilver (this item will, probably, not appear again for six months)	390 000
5.	Cog-wheel for Herring stamps	560 000
6.	Two months' stamp-heads, 961 000 (none having been charged in Dec.), the usual monthly charge may be assumed at ¼ excess	430 000
	Making together	*Rs.* 3382 000

Which come fairly under the denomination of "extras."

Feb. 17.—Gold extracted to date, 4942 oits., from 224·07 cubic feet of sand=22 oits. per cubic foot. The stamps working 17 days, average 68 heads. The supply of stone has been tolerably abundant, and has allowed the reduction officer to reject freely from the spalling-floor—the good result of which is evidenced in the more favourable produce now obtained from the first 10 days' stamping, as compared with the same period of January; and when it is recollected that the stamping was considerably impeded in the early part of this month, through the heavy damages caused to our regos by the rains, it is fair to hope that, in the absence of any such untoward accident, the gold extracted during the remainder of the month will be fully in proportion to that now announced from the first 10 days' stamping. In the West Cachoeira we have passed through the stope which yielded so much quartz during the last month, and the early part of this; and, for the present, we are tolerably free from quartz; but the stope on which they are now working abuts on the bar of killas, which separates the Middle from the Western Cachoeira; the consequence of which is, that the stone now sending up from that locality is half killas. When (next month) we return to the stope which proved so thoroughly quartzose, it will remain to be seen whether the same formation continues, and if so, to what extent.

New Works.—The 36-head stamps are progressing with spirit; the axle for the great wheel is nearly finished. Besides 10 carpenters, 9 smiths, 10 smiths' assistants, we have a force of nearly 30 people (valleiros and others) sinking the wheel pit and raising stone.

Amalgamation House.—The new 36-feet wheel is advancing rapidly; and the third and fourth new amalgamating barrels are nearly finished—one of them will be put in its place at the beginning of next week.

The *Charcoal Deposit* will, I expect, be completed by the end of next week; I purpose, then, turning over the carpenters, at present employed there, to construct a wooden frame for a new tan pit, which has been long wanted, to prepare additional hides for the stamps streaks, but which has now become absolutely necessary, to prepare for the streaks of the new 36-head stamps.

New Hospital.—For the last fortnight two carpenters have been employed on the timber-work of this erection; a third carpenter has been put on this morning, and, on Monday next, I hope to be enabled to put on a number of Brazilian labourers, so as to make a beginning with the erection of the posts, &c., for the building.

Feb. 27.—Gold extracted to date, 10,190 oits., from 491·54 cubic feet of sand=20·73 oits. per cubic foot. The stamps working 27 days, average 68 4-10th heads.

Supply of Stone.—Though a good deal of killas has been sent up from the mine, the supply of stone has been sufficiently plentiful to permit the rejection of the most inferior portion of it, to a larger extent than usual—the result of which is, that the amount of gold extracted, up to the present date, is very satisfactory; and, according to present appearances, the month's produce is likely to be a good one.

West Cachoeira.—On this locality we are working two stopes—one, as described in my last, as yielding half killas, half lode; the other, at the extreme west end, yielding excellent stone. Next month, I fear, we shall be annoyed again with the quartzose stope, which was so injurious to the January produce.

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending May 6, was 17,004; amount of money, £70 17s. 6d.

CRADDOCK MOOR.—At a two-monthly meeting of adventurers, held at Mr. R. Esterbrook's, Liskeard, the accounts, for January and February, were examined and passed, showing—Labour cost for the two months, 101*l.* 11s. 5d.; materials, 46*l.* 12s. 7d.; balance at last account, 16*l.* 11s. 9d.=164*l.* 15s. 9d.—By call, 180*l.*: leaving balance in favour of the adventurers of 15*l.* 4s. 3d.—A call of 12s. per share, payable immediately at the Devon and Cornwall Bank, Liskeard.—The following report was read:—"Since our last meeting, we have divided down the shaft, and brought the machine to draw from the bottom; I then set to drive east and west on the course of the lode. The 45 fm. level east is now extended 4 fms.; in this end the lode is about 6 in. big, and it contains peach and fluor-spar, with good stones of yellow ore—it is now set for 11*l.* 5s. per fm.; but the ground appears to improve as it goes east; the 45 west is extended 2 fms. 4 ft.—the lode in this end is from 8 to 12 in. big, composed of hard spar, some peach, and spots of ore; the ground is very hard, and is set for 11*l.* 15s. per fm. Since our last meeting, I have put two men to search for a cross-course—we found one, but could not go down deep enough to ascertain its underlie, because of the water; its bearing is 12° east of north, and its situation 12 fms. east of the shaft."

GONAMENA.—At a two-monthly meeting of adventurers, held at Mr. R. Esterbrook's, Liskeard, on 27th April, the accounts for Jan. and Feb. were examined and passed, showing—Labour cost for the two months, 313*l.* 6s. 2d.; materials, 132*l.* 4s. 2d.; lord's dues, 6*l.* 12s. 8d.=452*l.* 3s.—By balance of last account, 167*l.* 18s. 5d.; ores sold, 106*l.* 4s. 2d.; calls, 256*l.*=530*l.* 2s. 7d.: balance in favour of adventurers, 77*l.* 12s. 7d.—A call of 30s. per share was made, payable immediately at the Devon and Cornwall Bank, Liskeard. The following report was read:—"Sarah shaft is sunk under the 55 fm. level 2 fms.; it is sinking by nine men; the lode in the shaft is split up, by reason of the cross-course; in the west end, in the 55, on the north lode, the lode is 2 ft. big, composed of soft spar, peach, and mundic, with spots of ore; this end is driven 4 fms. from shaft; in the east end, in the 55, the lode is from 2 to 3 ft. big, composed of peach and mundic, with spots of ore; it is driven 4 fms. from shaft; we have several lodes and branches to the south, and are driving a cross-cut in the 55 to cut them. In the 45 end, driving east, the lode is 2 ft. big, composed of peach, spar, mundic, and ore—saving work. In the 34 end, driving east, the lode is 18 in. big, composed of peach, mundic, and ore—saving work."

TOKENBURY.—At a two-monthly meeting of adventurers, held at Mr. R. Esterbrook's, on the 28th April, the accounts for January and February were examined and passed, showing—Labour cost for the two months, 246*l.* 1s.; materials, 104*l.* 10s. 6d.; balance last account, 265*l.* 4s. 11d.=615*l.* 16s. 5d.—By calls, 244*l.*; leaving balance against adventurers of 371*l.* 16s. 5d. A call of 5*l.* per share was made, payable immediately into the Devon and Cornwall Bank, Liskeard. The following report from Capt. J. Richards was read; a copy to be sent to each adventurer; and a special meeting to be called to consider the future course to pursue:—"I found that, by driving the deep adit level south, several large interesting lodes have been intersected; and I beg to call your attention to three or four of them. The first I shall notice is the D lode, which has been worked or opened on below this point. Elliott's shaft is sunk to the adit level, near where Browning's cross-course intersected the D lode; and this level has been driven westwards on the course of the lode about 58 fms., where it intersected Bath's cross-course. It is continued west from this about 36 fms., where the D shaft is brought down; and its depth at this point is 44 fms. This adit level is extended west of the shaft 30 fms.; the lode in general is large, and in several places has a very promising appearance for making copper in depth. An engine has been erected, and, by a flat-rod, the D shaft has been sunk 22 fms. under the adit level, and the 22 fm. level has been driven west of D shaft about 60 fms. The lode retains its size, but its appearance has not improved from what it was in the adit level. From the D shaft in the 22 a cross-cut has been driven north 13 fms., where E lode is intersected and opened west on 4 fms.—here the lode is poor. The 22 is driven east from the cross-cut 38 fms., where Bath's cross-course is intersected; here the lode has a better appearance, and the first 8 or 10 fms. produced some ore; and the back and bottom have been worked for 4 or 5 fms. in length, which produce about 12 tons of ore, worth 5*l.* per ton; but the bottoms cannot be now worked, in consequence of water; this lode has also been cut at the deep adit; here the lode is large, but will produce but little ore. Crouch's shaft has been sunk about 22 fms. under the adit level, on Browning's cross-course, and from this point it is sunk to the 66 fm. level, on the E 3 lode; this lode, with the exception of 2 or 3 fms. before it reached the 55 fm. level, has been found unproductive; there is now a pitch working in the back of the 55, a little east of the shaft, which is promising to produce some ore; this E 3 lode has not been seen east of the cross-course, between the 55 fm. level and the deep adit, where it is driven about 5 fms. east, and the lode has a very favourable appearance; the adit level is driven west of Browning's cross-course about 40 fms. on the lode; and here the indications are such as promised to make a great quantity of ore in depth; but thus far those anticipations have not been realised. The 12 fm. level has been driven 48 fms. west; the lode in the present end is hard and poor; the back at some places has produced small quantities of ore; the 22 is driven about 38 fms. west—the latter 9 fms. the lode has divided, and is poor; east of this point it has much of the same appearance as the 12 fm. level. The 42 has been driven west 22 fms.; and there have been about 20 tons of ore risen from the back and bottom of this level; the lode in the end is poor, and about 5 fms. between the north and south part of the lode. There has been about 9 fms. driven west on the north part, in the 55, through poor ground; the 55 has been driven east on this part of the lode about 36 fms.—here the lode has a better appearance. In the bottom level (66) the E 3 lode has been opened on about 10 fms. east and 10 fms. west; there has been a great deal of work done in this level by cross-cutting; and about 40 fms. north of the shaft E 4 lode has been cut; but the appearance is not as well as where it was seen in the adit level; this cross-cut has also been continued so[illegible]70 fms., where the D lode is cut and driven west on 30 fms. through a large sparry lode, very poor, and without improvement in depth; the cross-cut has been continued 20 fms. south of lode, and has intersected another large lode; but it does not present very favourable appearances where it is intersected. Thus far this mine has proved a failure, yet there are some few points that deserve a further trial. The D lode, east of Bath's cross-course, in the deep adit level, for 30 fms. in length, is of a very promising nature; and there has been no level driven under this ground. In the 22, by a cross-cut on Bath's cross-course, south from the E lode, this (D) lode is intersected—and a few months would put this level under the above ground; also, the 65 is driven west from the south cross-cut, nearly under the eastern part of the same ground; this level should also be continued; and also the 55 fm. level, on the north part of E 3 lode, should be driven east to the junction of the killas and granite. After expending so much money in sinking shafts, and driving cross-cuts, to reach the objects, it is a pity to abandon without giving the objects a proper trial; indeed, there has been no great extent of ground opened westward, or eastward, on the E 3 lode, though, at some points, this holds out encouragement to do so; but this cannot be accomplished without a further advance of money, as at present there can but very little ore be raised to come against the cost; and if the adventurers cannot make up their minds to work this mine with some degree of spirit, it is my opinion the sooner it is suspended the better."

WEST CARADON.—At the two-monthly meeting of adventurers, held at the mine, on the 27th April, the accounts, for January and February, were examined and passed, showing—Salaries and counting house expenses, 88*l.* 15s. 5d.; engine, smith, carpenter, and sawing, 173*l.* 7s. 10d.; tribute and tutwork, 1443*l.* 6s. 7d.; pit and timber men, surface, tramming, wheeling, landing, &c., 269*l.* 11s.; dressing ores, carriage, &c., 815*l.* 18s. 5d.; merchants' bills, rates, &c., 843*l.* 1s. 7d.; sundries, 28*l.* 9s. 11d.: together, 3662*l.* 10s. 9d.—By materials sold, 28*l.* 18s. 7d.; ores sold, Jan., 2166*l.* 5s. 6d.; Feb., 2155*l.* 13s. 6d. =4321*l.* 10s.; less lords' dues, 266*l.* 16s. 6d., leaves total receipts, 4084*l.* 1s. 1d. —being a balance in favour of adventurers of 421*l.* 10s. 4d.; to which add that of last account, 1016*l.* 10s. 2d., makes a total of 1438*l.* 0s. 6d., out of which 625*l.* had been invested in railway shares: leaving balance of 813*l.* 0s. 6d.

WHEAL MARY CONSOLS.—At a two-monthly meeting of adventurers, held at Mr. R. Esterbrook's, Liskeard, on the 28th April, the accounts for January and February were examined and passed, showing—Labour cost for the two months, 1142*l.* 14s. 2d.; materials, 339*l.* 18s. 1d.; dues, 67*l.* 7s. 1d.; balance of last account, 446*l.* 17s. 10d. = 1996*l.* 17s. 2d.—By copper ores sold, 350*l.* 13s.; tin ores, 829*l.* 18s. 11d.; materials sold, 65*l.* 6s. 4d.; call, 512*l.*: leaving balance against adventurers of 238*l.* 18s. 11d.—A call of 50s. was made payable immediately, at the Devon and Cornwall Bank, Liskeard.—The following report was read:—"Since the last meeting, we have suspended operations under the 70 fm. level. The sumpmen have been employed sinking a winze, under the 25 fm. level, on the south copper lode, to communicate with the 50 fm. level, for the purpose of ventilation, and to lay open the ground for the convenience of stoping. We have not yet intersected the lode, in driving the 70 fm. cross-cut north, but hope to do so in a short time. Our progress here is very slow, having only two men employed, and the ground being hard. The south copper lode, in the 50 fm. level east, is 2 ft. big, and contains a branch of good ore, 18 in. wide, yielding about 2½ tons of ore per fm. In the western end, the lode is at present yielding a small portion of ore. The stopes, in the back of this level, yield on an average about 2 tons of ore per fm. We have driven through a course of ore, in this level, 20 fms. long, worth about 12*l.* per fm., and still continuing good, as above, in the eastern end. Instead of sinking Robins shaft from the 25 to the 60, and then driving a cross-cut to the old lode, to intersect the south lode, being 35 fms. to sink and 40 fms. to drive, we beg to propose that a new shaft be sunk from surface, at the most advisable point for commanding the discharge of stuff and for ventilation. This, we are persuaded, would prove most advantageous to the concern—in convenience, time, and money. Another tin lode having been discovered, a little south of the present tin workings, we have removed the men from the 25 cross-cut, to sink a few fms. to try it; and then, if appearances warrant, to drive a cross-cut from the 35 fm. level, where it can be intersected in a few fms. driving. In consequence of an influx of water, occasioned by the quantity of rain during the past two months, the sinking of the shaft at the tin lode has taken much longer to accomplish than we anticipated. It is now down to the 45, and the cross-cut commenced driving towards the lode, which we expect to reach in about ten days. We have not yet been able to arrange for the working the copper lode, which has been discovered in Wheal Sisters' 60 fm. level, and worked until they reached Wheal Mary Consols boundary, and where they left a small course of ore. Judging from present appearances, our returns will be about 20 tons of tin, and 70 tons of copper ore, for the next two months."

WHEAL SISTERS.—A two-monthly meeting of adventurers was held at Mr. R. Esterbrook's, Liskeard, on the 28th of April, when the accounts for Jan. and Feb. were examined and passed, showing—Labour cost for the two months, 693*l.* 16s. 10d.; materials, 162*l.* 9s. 5d.: dues, 37*l.* 19s.=894*l.* 5s. 3d.—By copper ore sold, 636*l.* 1s. 10d.; call, 240*l.*; balance of last account, 111*l.* 10s. 9d. —leaving balance in favour of adventurers, 93*l.* 7s. 4d.—A call of 30s. per share was made, payable immediately at the Devon and Cornwall Bank, Liskeard. The following report was read:—"On the south copper lode, the 30 fm. level has been extended 60 fms. east of shaft. This level was driven east 30 fms., in a large poor lode, before it was found productive; and, for a further 10 fms., it yielded about 2½ tons of ore per fm., which held above the back of the level for about 5 fms.—it has been extended 20 fms. beyond this point in unproductive ground. This level west of said shaft has been driven 76 fms.; for the first 26 fms. the lode was unproductive; for the next 30 fms. it yielded 2 to 3 tons of ore per fm.; and for the last 20 fms. driving the lode is unproductive. The 40 fm. level east has been extended 78 fms.; 20 fms. of this distance the lode yielded 2 tons of ore per fm.; in the remainder part, we have found occasionally stones of ore. This end is now driving by four men; the lode in the present end is 20 inches wide, composed of quartz, mundic, and stones of ore. The 40 fm. level west has been extended about 75 fms.; for the first 28 fms. the lode was unproductive; then, for 30 fms. in length, it yielded 2 to 3 tons of ore per fm.; and for the last 17 fms. driving it is unproductive. The 50 fm. level has been extended 50 fms. east; 10 fms. of this distance it yielded 2½ tons of ore per fm.; the last 20 fms. driving it has been unproductive. The 50 fm. level is extended west upwards of 80 fms.; and for 30 fms. of this distance the lode yielded 2 to 3 tons of ore per fm. The 60 fm. level has been extended 80 fms. west of said shaft to Wheal Mary boundary; the last 7 fms. only of which have been found of much value. The lode in the stopes, in the bottom of the 60 fm. level, near the western end, is worth about 11*l.* per fm. The 60 fm. level has been extended east of shaft 30 fms.—lode poor and unproductive. The engine-shaft has been sunk to the depth of 70 fms., and the levels extended 6 fms. east, and 10 fms. west—lode divided in two branches, and unproductive. In order to make a more expeditious trial in the western part of the mine, under the 60 fm. level, we have sunk a winze 10 fms. deep, about midway between the western bunch of ore, and the dip of the eastern bunch of ore. The winze is now completed, and we purpose to commence driving on the lode immediately—it is 3 ft. big, composed of cupel, mundic, and stones of ore. The 50 cross-cut driving towards Wheal Mary lode, appears to be very near cutting it; the intersection of this lode is a very important object; it is standing entire to the surface, and may very materially add to the resources of the mine. The 40 cross cut, driving towards Wheal Mary tin lode, has been driven 3 fms. in the past two months, leaving about 9 fms. more to drive to reach it. The 30 cross-cut is extended to within 6 ft. of the boundary of Wheal Mary, leaving about 5 fms. more to drive to reach the tin lode; this is suspended for the present, and the men put to drive the 25 fm. level east on the course of the tin lode from Wheal Mary sett, an arrangement for this purpose having been made. Near the cross-course the lode is split in parts, but as it diverges from it the branches are again uniting; the north branch is 12 in., and the south 6 in. big; the former is at present poor, but the latter is worth 4*l.* per fm., showing good indications for improvement. On the north lode, we have two pares of tributers employed, at 10s. 6d. and 13s. 4d. in 1*l.*; who will raise about 7 tons of ore, worth 8*l.* per ton, in the present two months. We have three men employed driving the adit towards the copper lode discovered in the north part of the sett (referred to in last report), and we expect there are about 3 or 4 fms. more to drive to reach it. Our next two-monthly sale of copper ore will be about 70 tons, and we shall also probably have 40*l.* to 50*l.* worth of tin."

GADAIR MINING COMPANY.

A special general meeting of adventurers was held at the offices, 25, Fleet-street, on Tuesday, the 9th instant.

G. W. BLANCH, Esq., in the chair.

The circular convening the meeting, with the minutes of the preceding meeting, and those of the finance committee, were read, as also a statement of accounts—from which latter it appeared, that there remained undisposed of 2969 shares, which, with other items, showed a balance in hand of 555*l.* 15s. 7d., after deducting the liabilities, amounting to 423*l.* 5s.—it appearing, however, that such liabilities would be required to be met by a call on the respective shares, and which was also indispensable for the active prosecution of the mine. —The report of Capt. H. F. Stephens, who had visited the mine, in company with several of the principal shareholders, was laid on the table; a printed copy having been previously transmitted to the several adventurers.

Mr. JAMES TRUSCOTT stated to the meeting the substance of a communication he had received from a large majority of the adventurers—the greater part of whom were residents of Manchester and Liverpool—to the effect, that it was in their opinion desirable the business of the company should henceforth be conducted at the British Mining Offices, in Manchester, which was, in the end agreed to, and instructions given to the purser to forward the books and documents forthwith.

A conversation ensued as to the most ready way to raise funds for liquidating the claims which existed, as also for providing such as were required for working the mine with vigour, it appearing that an engine would be necessary to prove the mine in depth; whereupon it was resolved, that a recommendation be made to the present adventurers to increase their interest in the proportion of one share to every ten at present held, whereby a sufficient sum would be raised to effect the required object.

The accounts were referred to D. L. Williams, Esq., and Henry English, Esq., to examine and audit the same—on which being done, it was determined that a printed copy be furnished to every adventurer.

Several resolutions having been passed, which will be found in our advertising columns, and thanks voted to the chairman, the meeting separated.

WEST WHEAL JEWEL MINING COMPANY.

The annual general meeting of shareholders in this company was held at the offices, Old Broad-street, on Monday, the 8th inst.

Mr. JAMES HERRON in the chair.

Mr. NICHOLSON (the secretary) read the notice convening the meeting, and the following—

DIRECTORS' REPORT.

Your directors beg to submit the following report:—It will be perceived, by the financial statement now before you, that the quantity of tin and copper ore raised from the mine and sold during the past year, exceeds that of the year preceding; and, if the standard had borne a fair and just approximation to the price of fine copper, and tin had maintained its former value, the result would have been a considerable profit upon the year's operations. The quantity of tin ore alone which has been sold during the last 12 months may be estimated in round numbers at 115 tons, but it realised less by fully 10*l.* a ton than the sales effected in 1846—thus showing a falling off in the receipts of upwards of 1200*l.* The same remark is applicable, though not to the same extent, as regards the sales of copper ore—as the quantity raised was less, owing to the operations having been limited principally to driving the 57 and 70 fm. levels on Wheal Jewel lode; still the deficiency upon the whole may be estimated at 200*l.* Reports will be read from the committee, and also from the agents on the mine; both, it will be observed, speak encouragingly of our future prospects, if the operations are carried on effectively. To accomplish this desirable object, further pecuniary assistance is required; and your directors, therefore, propose a call of 10s. per share, in two instalments of 5s. each—the first to become due on the 8th of June, and the second in four months from that date—viz.: on the 8th of October. This will afford the means of extinguishing the present debt, and of carrying out the views of the committee, not only as regards the extension of operations underground, but also as to the erection of additional stamping power, whereby a more regular and increased supply of tin may be obtained. Your directors, in conclusion, trust that the favourable opinions expressed by the committee in their report, as to the ultimate results, will ere long be realised.

The following report of the committee in Cornwall was also read:—

Wheal Jewel Lode.—Our operations on this lode have been confined of late to driving the 70 and 57 fm. levels west of Williams's cross-course, where our prospects are favourable, as will be seen by the captain's report; and we are of opinion they ought to be continued; and, in order to reduce the working cost, we recommend the water being allowed to rise to the 85 fm. level, and all the pumps, timber, &c., drawn up to that level, as nearly all the tribute ground below is very poor, and we expect there is sufficient ore ground above this level to pay the engine cost, and enable us to prosecute this lode without loss down to the 85, considering that we must drain the water to the 90 or 40 fm. level, in order to work the tin lode. We must also beg to refer you to the captain's report, for particulars on Tolcarne tin lode; and, had the price of tin been the same as six or eight months since, we should have made a good profit, and, therefore, recommend a continuance, and, if possible, a more extended working. In order to carry on this with proper effect, we ought to have more stamping power to return the tin, as in the summer the water stamps are inadequate for even the present quantity raised; and we do not see how this is to be effected, unless you erect steam stamps, or attach a stamps to the whim engine; the latter would be attended with an expense of about 300*l.* It will be seen, on reference to our returns, that, in consequence of the great reduction in the price of metals during the last six or eight months, we have experienced great loss. In conclusion, we beg to state, that if the operations of this mine are carried on with proper effect, there is every probability of the shareholders being remunerated for their outlay; but at the present low prices of copper and tin, a call will be necessary to carry on these operations.—W. RICHARDS; J. RICHARDS.

The statement of accounts was as follows:—

To cash of late purser	£225	16	9	Balance last account	£143	7	4
Copper ores sold	3692	2	6	Cost, 12 months	6954	0	7
Tin ditto	5040	1	10	Merchants' bills	2192	3	3
Arsenic and old materials	15	10	0	Lord's dues	358	14	11
Balance owing Truro Bank	1079	11	6	Interest, commission, London expenses, printing, &c.	342	3	0
				Balance in hand	56	13	6
	£10,053	2	7		£10,053	2	7

From the statement of assets and liabilities, it appeared that the former

amounted to 1213*l.* 13s. 2d.—estimating the tin at surface at 350*l.*, and the latter 1743*l.* 15s. 1d. There appearing an item in the year's cost of 21*l.* loss on breadstuffs, Mr. COMMANDER inquired the cause, and Mr. HARVEY explained; it appeared that, during the high price of corn, it was arranged to purchase meal, and retail it to the miners at a cheaper rate, and thus ameliorate their condition; each mine in the district contributing in proportion to the number employed. On a subsequent fall in the market, the remaining stock was sold by auction, when a loss from the original price was the consequence—the quota to this company being the sum named. A meeting having taken place in Cornwall of the county shareholders, on the 2d inst., a resolution was read, passed by them, recommending a 10s. call, and signed by Messrs. W. Carne, W. R. Broad, E. C. Carne, R. R. Broad, W. Broad and Sons, and for James Harvey and Thomas Tabb, by T. Matthews—together holding about 1000 shares; and the report and accounts were then adopted unanimously. Mr. Bawden, whose turn it was to go out of office by rotation, was re-elected.

Mr. BAWDEN observed that, if the 57 end continued improving as it had done, it was probable they might not want the second instalment; and some general conversation ensued on the prospects of the mine, which elicited nothing but what will be found in the several reports, excepting that the fall in the price of tin was from 18 to 20 per cent., and in the standard of copper ore, on a produce of 7½, from 112*l.* 16s. to 94*l.* 16s.—Thanks were then voted to the committee in Cornwall for their gratuitous attention to the interests of the shareholders, to the chairman and directors, and the meeting separated.

IMPERIAL BRAZILIAN MINING ASSOCIATION.

The half-yearly general meeting of this association was held yesterday, at the London Tavern—THOMAS GIBSON, Esq., in the chair—for the purpose of electing three directors, in the place of Mr. Gibson, Sir Isaac Lyon Goldsmid, and Mr. John Wray, who offered themselves for re-election, and were re-appointed without opposition. Mr. A. J. Valpy (the auditor), who, like the directors, went out by rotation, was also reappointed.

The report was then read by Mr. GEORGE THOMAS, the acting director, the substance of which was, that the directors deeply regretted being unable to give a more satisfactory statement, in consequence of the delay of certain arrivals; but they had every reason to speak favourably of the prospects of the undertaking, from their communications from Brazil. In the last report, the directors declared that they had forfeited 234 shares, in consequence of the non-payment of the call of 2*l.* per share due on the 8th of July of last year: 11 of these had been subsequently restored, and 223 have been sold. The receipts from the Gongo Mine during the last half-year have been something more than 91 lbs., producing the sum of 6101*l.* 1s. 6d., while the expenditure has been 11,834*l.* 1s. 5d. —leaving a deficiency of 5732*l.* 10s. 11d., which has been partially met for this and other purposes by the sale of 2235*l.* 8s. 3d. 5½ per cent. stock, which constituted part of the reserve fund. The remainder of the amount was to be met by a call, which the directors recommended, of 10s. per share, payable on the 14th of June next.

From the statement of accounts, it appeared that the balance from last accounts was 8778*l.* 16s. 7d.; salaries and expenses, 11,834*l.* 7s. 5d.; expenses on account of the Bananal sett, 16,307*l.* 1s. 5d. = 36,920*l.* 5s. 5d.—By interest on stock, 473*l.* 5s. 8d.; proceeds of 3¼ per cent. stock sold out of reserve fund, 2017*l.* 9s. 2d.; proceeds of gold, &c., 6101*l.* 1s. 6d.; amount on call 8th July, 1847, 17,254*l.*; in additional calls, 5743*l.* = 31,588*l.* 16s. 4d.: leaving a balance against the association of 5331*l.* 9s. 1d.—From the statement of assets and liabilities, it appeared, that the former amounted to 36,514*l.* 12s. 2d., and the latter, 8750*l.* 15s. 7d.

One of the SHAREHOLDERS complained, that the report had not been printed and placed in the hands of the shareholders; and a motion was made to the effect, that on all future occasions it should be at least three days before any general meeting; but, on being put, it was lost by a large majority.

Another SHAREHOLDER then suggested that, instead of the call of 10s. a share, the same plan as that adopted in the United Mexican Association should be followed—viz.: the allowing certain shareholders to advance money on the security of the property, to enable the works to be proceeded with—the directors given such shareholders equivalent advantages for their advances.

Mr. GIBBES stated, in reply, that only within the last week the directors had received advices of the carriage of gold towards this country, which had, however, been unexpectedly delayed at Rio Janeiro, but which might arrive at any moment; and it would, therefore, he thought, be unwise to deviate from the usual plan on the present occasion.

The report was then put and adopted, thanks voted to the chairman, and the meeting dissolved.

EAST WHEAL ROSE.—At a two-monthly meeting of adventurers, held on the 5th inst., the accounts were examined and passed, showing—Labour cost, for January, 2081*l.* 12s. 3d.; do. for February, 2202*l.* 2s. 4d.; merchants' bills &c., 2129*l.* 11s. 7d.; dues, 649*l.* 17s. 7d.; dividend, 4480*l.* = 11,543*l.* 3s. 9d.—By balance of last account, 2490*l.* 0s. 10d.; lead ore sold, 9740*l.* 12s.; on account of ditto, sold in March, 1000*l.*; Cargoll adventurers for supplies, water charges, &c., 294*l.* 6s. 6d.; ditto on three-quarters of Jan. and Feb. profit, 579*l.* 16s. 2d. = 14,104*l.* 15s. 6d.: leaving balance in favour of proprietors, 2561*l.* 11s. 9d.

TAMAR CONSOLS.—The following statement of accounts has been issued by the directors:—

MARCH ACCOUNT.

Dr.—To engagements this month	£1497	Cr.—By silver on sale	£4550
25 per cent. capital	2400	Lead sold	1550
Bonus	1200	Bills on hand	2400
Balance	3403		
Total	£8500	Total	£8500

APRIL ACCOUNT.

Dr.—Engagements this month	£4900	Cr.—Balance from last account	£3403
Balance	4343	Silver	3490
		Lead	1350
Total	£9243	Total	£9243

MAY ACCOUNT.

Dr.—Engagements this month	£2400	Cr.—Balance from last account	£4343
Balance	9243	Silver	4950
		Lead	2350
Total	£11,643	Total	£11,643

JUNE ACCOUNT.

Dr.—Engagements this month	£4700	Cr.—Balance from last account	£9243
25 per cent. capital	2400	Silver	3300
Bonus	1200	Lead	2350
Balance	6893		
Total	£14,893	Total	£14,893

SOUTH WHEAL BETSEY.—I am happy to tell you that we have discovered another most splendid lead lode underlaying east; it is about 4 ft. wide, carries two very regular walls, with a beautiful gossan and stones of lead—when I return back (to-morrow), I will write you more in the course of a post or two.

Mr. Hood, the engineer of the London and Brighton Railway, has been awarded the first premium of 100*l.*; and Mr. Patton, of York, the second premium of 50*l.*, for the best designs for a large locomotive-plant, carriage establishment, workshops, &c., sufficient for 150 miles of railway, and to be erected for the East Lancashire Railway Company, at Bury, in Lancashire. We understand that, from the great number of designs sent in, the investigations of the committee were protracted nearly a year.—*Durham Advertiser.*

Mr. Calvert, of Gelliwasted, near Newbridge, has obtained the contract for supplying the Great Western Railway with coal for the ensuing three years. The contract took effect on the 1st inst. The amount to be supplied is not to be less than 60,000 tons per annum. Tenders were sent in from Swansea, Newport, and other places, but we are glad that the contract is continued to parties residing in this district.—*Merthyr Guardian.*

ACCIDENTS.

Bunn's Lane Colliery, Dudley.—J. Matthews was sadly injured by the falling of a quantity of rock; the poor fellow miraculously escaped a broken limb, but his whole frame presents a sad spectacle of severe contusions.

Rowley Regis—Two Men Killed.—Two colliers, named Andw. Poole and Wm. Jones, were killed by a fall of stone, at Cotsall Colliery, belonging to the New British Iron Company. The fall was occasioned by the removal of a tree, placed to support it.

Merthyr.—J. Owen and a companion were killed by a fall of coal at Abercannad Colliery.

NEW PATENTS.

I. Hartes, Rosedale Abbey, York, farmer, for certain improvements in machines or machinery for rowing, sowing, and manuring land.

L. D. B. Gordon, Abingdon-street, Westminster, civil engineer, for an improvement or improvements in railways.

W. M'Lardy, Salford, manager, and J. Lewis, of the same place, machine-maker, for certain improvements in machinery or apparatus applicable to the preparation and spinning of cotton, wool, silk, flax, and other fibrous substances.

R. Laming, Cliehy la Garonne, France, for an improvement or improvements in the manufacture of oxalic acid.

E. Haigh, Wakefield, plumber and manager of the Wakefield Water-Works Company, for an invention for measuring water or any other fluid.

C. Hancock, Brompton, Middlesex, for certain improved preparations and compounds of gutta percha, and certain improvements in the manufacture of articles and fabrics composed of gutta percha, alone and in combination with other substances.

T. Wressell, Tooting, Surrey, watchmaker, and R. Clark, Strand, Westminster, lampmanufacturer, for improvements in chronometers, clocks, watches, or other timekeepers.

V. Price, Wardour-street, Soho, Middlesex, machinist, for certain new or improved mechanical arrangements for obtaining and applying motive power.

G. Armstrong, Newcastle-upon-Tyne, engineer, for an improved water-pressure engine.

Mark Smith, Heywood, Lancashire, power-loom maker, for certain improvements in looms for weaving.—*Mechanics' Magazine.*

FOURDRINIER'S PATENT SAFETY APPARATUS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—On reading your paper of the 6th inst., I was surprised to find there a letter, purporting to have been written by me, relative to "Fourdrinier's Apparatus," at Gwan-cae-Gurwen Colliery; but as it has been done without either my knowledge or consent, I feel confident you will allow me to make a few remarks thereon; which I feel called upon to do—not only out of justice to myself, but as a duty I owe to my many friends, and other gentlemen connected with mining.

About two months since, Mr. Fourdrinier brought his apparatus from London, for the purpose of erection at the above-named pit; but after his man, assisted by several of our men, had been employed for four or five days in placing it, it was found to be perfectly useless, which was witnessed by several gentlemen at the time, and acknowledged by Mr. F. It was then taken down, and Mr. F. returned home, for the purpose of making the necessary alterations. In the meantime, assisted by J. Thomas, our smith, I projected many alterations and improvements—a plan of which I forwarded to Mr. F., and with which he expressed himself perfectly satisfied, and gave directions that our smith should make one, according to my plan, for this pit, which he did, and which is the one that Messrs. Martin, Watson, and many other gentlemen, have seen in operation, and have been so much pleased with, and which, as the forger of my name in your last Number says, we were able to attach to the cage in less than half a day.

Thus you will perceive, that the apparatus which has been put up at Gwancae-Gurwen, and which can be seen every day in constant work, is not "Fourdrinier's Patent," but a great improvement of mine, for which I intend taking out a patent myself. DAVID LLOYD.

Gwan-cae-Gurwen Colliery, Cwmammon, near Llandilo, Glamorgan, May 9.

[We, of course, feel bound, as a matter of justice, to insert the above communication from Mr. Lloyd—still feeling that there must be a great mistake in the matter. Fourdrinier's apparatus has been tested in some of the deep pits of Staffordshire; and a corve, weighing 40 cwts., arrested in its descent (when the rope was cut) almost instantaneously. We are led to make these remarks, from having originally noticed Mr. Fourdrinier's invention, and which we considered would be highly conducive to the preservation of life in coal mines. That gentleman, we understand, is at present absent from London; but we think it highly probable that a full explanation of the affair will appear in our next Number.]

SILVER AND LEAD MINES IN SWITZERLAND.

SIR,—In your Journal of last week appeared a letter, signed "Boyet Richard," denying that he had sold one-fifth part of the silver and lead mines in the Valley of Loëtschen, Canton du Valais, Switzerland, or any other part, to any one connected with this office. As steps have been taken by this office to bring before the public, on certain terms, one-fifth of this mine, I beg to trouble you and your readers with a few simple facts in reference to it, premising that the actual words "one-fifth" were not used in the agreement, but "20 per cent. on the net profits" was what was proposed to be conceded. However different the expressions, the result of the fraction is the same. In parting with this interest, it was proposed to raise a sum "for erecting smelting-works, and for other purposes of the mine," and certain representations were made of the quantity of ores already extracted, and of their value, and of inexhaustible ores discovered.

On the 12th February last, an agreement to provide the necessary funds, *to be so applied*, was entered into, *if*, upon examination of the mine and ores, the high representations made of them were sufficiently borne out by the facts. To ascertain this, a few gentlemen, *at their own expense*, appointed a person conversant with mines, to proceed to Switzerland, and his report was given on the 22d ult. in your Journal.

One of the gentlemen, who had avowed an intention to take an interest in the concern, came from Germany to the Canton du Valais, and thence accompanied the party to Geneva; where he, on the 1st of April last, made a payment of 200*l.*, on account of the agreement made in London. The parties arrived in London the 18th of April, and on the 20th met—further to carry out the agreement after the six weeks, which had been expended in making the survey—but, because, in the two days that had elapsed between the arrival of the parties and the day of meeting, the whole sum stipulated was not forthcoming, Mr. Boyet refused to take 500*l.*, which was then offered to him. It has been stated, that the money was "for the purpose of erecting smelting-houses, &c., on the mine," and it was necessary to enter into proper securities for that purpose, and also to examine into the title to the mine. In this latter respect, it was discovered, that Mr. Boyet's name was not mentioned in the concession of this particular mine; and that, in respect to other mines negociated for, he was a *co-comessionaire* with two others. Some time was, therefore, necessary to examine into various documents connected with the mine, and to prepare the requisite instruments to secure the interests of those proposing to advance the money, whose intention it was to form a company for the purpose—the preliminary steps for which (pending these proceedings) were taken at this office, with the full approbation of the parties. Why Mr. Boyet has inserted such a letter, is a matter, at present, of conjecture; but some new facts and circumstances are daily transpiring, which may, if they be of public interest, form the subject of another communication. MOLYNEUX & COMPANY.

140, *Strand, May* 12, 1848.

IRON AND COAL TRADES OF SCOTLAND.

It appears, that in addition to the continuous improvements to which the Queensferry across the Forth, at Dunfermline, had for many years previous been receiving, the Edinburgh and Perth Railway Company, in 1845, applied for powers to alter and make further improvements, which was lost in Parliament. Since this, the Edinburgh and Glasgow have had, and now have, a bill before the House for its amendment, with the intention of establishing a powerful steam-boat communication, by which the Forth could be crossed in three minutes, to the great accommodation of the people of Fife, and the north country. This bill is now opposed by the Edinburgh and Northern Railway Company, as they fear it will interfere with a large portion of their traffic, and a large meeting of the trustees of the ferry and inhabitants of the town was held at Dunfermline, on the 3d inst., for the purpose of taking the sum of the majority on the subject, when there appeared 65 in favour, and 23 against the bill, as now before the House. This decision appeared to give almost general satisfaction; and it is believed in the district, that the harbour, when completed under the proposed Act of Parliament, will be one of the best and most accessible on the east coast of Britain, within six miles; and being directly connected by railway with it, and through it with the railways in the south, and with the lines at present in course of formation, our position will be altered very materially for the better. Besides the staple trade of the town and neighbourhood which will thus be benefitted, this district promises in a short time to become important for its trade in iron. About three miles west on the line of the Stirling and Dunfermline Railway, are the Forth Iron-Works, which have been in operation for three years, and whose make of iron is from 25,000 to 30,000 tons per annum; to the east, about five miles on the Thornton line of railway, are the Lochgelly Iron-Works, nearly ready to commence making; and there are extensive fields of fine black-band ironstone known to exist to the north of the town, besides the works of the East of Scotland Malleable Iron Company close to our town, and near the junction of the three railways, which are nearly completed, and are expected to be in operation in a month or six weeks. These works are situated most advantageously both for land and sea conveyance, the two railways presently in course of formation passing close on the north, and the survey of those to Queensferry on the south, intersecting the property belonging to the iron company, and being in the immediate neighbourhood of the numerous collieries, from which the excellent coals for which the district is famed are produced.

These collieries also, which produce from 400,000 to 600,000 tons of coal annually, will probably ship a large part of their output at Queensferry, and, along with the iron and other general trade, will afford an ample revenue for the outlay, at the same time that the dues leviable by the bill are very moderate. It is understood the harbour is to have 8 ft. depth at low-water, and 26 ft. at high water of spring tides, and is to have berthage for from 12 to 20 vessels loading at a time, independent of slips for steam-boat and ferry accommodation.

FIELDER'S PATENT IMPROVEMENTS IN IRON BEAMS OR GIRDERS.—[Patent dated Nov. 9, 1847. Patentee, Henry Fielder, of Maida Vale. Specification enrolled May 9, 1848.]—The improvements described in this specification relates—1. To the construction of beams or girders, composed partly of malleable iron and of cast-iron, which the patentee terms compound girders or beams. The lower or tension flanges are made wholly or partly of malleable iron, while the centre ribs and upper or crushing flanges are wholly or partly of cast-iron, according to the duties they may have to perform; for instance, the lower flange may be made of, or strengthened by the addition of, malleable iron, and the centre rib and upper flange remain of cast-iron; or, the upper and lower flanges may be of, or strengthened by the addition of, malleable iron, united to the centre cast-iron rib, and further strengthened, when exposed to vibration, by angle iron; or, the perpendicular ribs may also be composed of malleable iron, when exposed to violent concussions. The malleable iron is united to the cast-iron by hot rivetting, and, in all cases, in such proportion that it shall be able to support, alone, the estimated weight to which the whole girder may be subjected, and so prove efficient in case of fracture of the cast-iron portion.—2. In the application of the preceding principle of construction to the strengthening or repairing of existing beams or girders, with such variation of detail as the particular case may suggest.—3. To the construction of beams or girders composed entirely of malleable iron, in which case the flanges are united to the centre rib by angle iron, the coupling joints headed, and the whole fastened together by hot rivetting.—*Mechanics' Magazine.*

Sir J. P. Boileau, Bart., Mr. P. Le Neve Foster, Mr. Scott Russell, and Mr. H. Cole, a deputation of the members of the Society of Arts, waited upon Viscount Morpeth yesterday, at the office of Woods and Forests, Whitehall-place.

THE MINING INTEREST OF HOLYWELL.

The sub-committee, appointed at a meeting of the general committee, to consider the best means of improving the trade of the town, having had under their consideration, "How far the working of the lead mines are affected by the present rate of royalties, or farm-rents, charged by the present owners of mining lands, and others connected with mining property in this district"—take leave to lay the following report before the meeting, under the firm conviction that, if their views were carried out, not only the interests of the town, but the owners of royalties, would be considerably benefited.

We find that the parish of Holywell contains a population of 10,834, about 4000 of whom were, when the mines were in full work, engaged in mining operations; scarcely 300 of these are now earning on an average 8s. per week. Holywell being their market town, they used to spend their wages therein, which was one great cause of the free circulation of money. The price of ore then enabled the proprietor of the mine to let his ground be worked much more advantageously to the working miner than at present, for this reason—the ore then raised was what may be termed surface ore, got within the depth of 30 to 40 yards, which did not require heavy machinery to raise it; but, from the supposition that nearly all the surface ore has been raised, it will now be requisite to enable parties to work the mines advantageously, that heavier machinery should be employed, such as powerful steam-engines, both for pumping the water and winding the gear; or as may be more advantageous, to drive deep levels, to unwater certain localities, which will require a much larger outlay of capital. To meet which, and to act as an encouragement to capitalists to come forward to work these mines, we consider it absolutely necessary, that the different owners of mineral property should either work the mines themselves, or conform to the system so generally adopted in the great mining districts of England, Ireland, Scotland, the Isle of Man, and in South Wales, where, sooner than allow their mining ground to remain unworked, as in this district of Flintshire, and as an inducement to keep the capital in the country, instead of its being sent abroad to work the foreign mines, to the serious depreciation, not only of the Flintshire mines, but of our fatherland, have generously come forward to reduce their royalties from an 8th, the old standard of Cornwall, to a 15th, and in some instances, where the mines are much troubled with water, to a 24th, but in no instance more than a 10th; whereas the system in this district of letting the mining grounds is absolutely the most pernicious that can be adopted, and which operates most prejudicially against the interests of the adventurers, as well as to the owner of the land, and acts as a premium to the working miners to rob the mine, instead of its being worked scientifically and fairly.

From inquiries made, we find the average amount of royalty, or rent, charged in this district is one-eighth, whatever the price of ore may be (which was not so severely felt when the royalties were first charged, as the price of ore was then from 14*l.* to 20*l.* per ton, whereas the price of ore for the last 10 years will scarcely average 10*l.*), but in some mines the following scale is charged—viz.:

If the standard price of ore is	£14	per ton, the royalty is	£2	0	0 per ton.
"	£12 and under	14 " " "	1	15	0 "
"	10 "	12 " " "	1	10	0 "
"	10 "	" " " "	1	5	0 "
"	"	" " " "	1	0	0 "

And some owners charge permanently " " " but in one instance, where strong representations have been made, and sooner than allow the mine to be abandoned, a reduction has been made to 1-12th and 1-15th, but even this is scarcely commensurate with the heavy outlay of capital on the part of the spirited mining company. Having extended our inquiries as to the probable duration of our lead mines, we have little or no doubt, but that the old adage will be verified in this district, that, "There is ore for every age, but not for every man," as it is now proved that the lead ore is found in the deep; and we most sincerely hope the owners of royalty will not pursue that discouraging system of high royalties so long and so injuriously maintained here; and let it not be said for the future, "that far greater encouragement is given to adventurers in Cornwall, Devon, the North of England, and in Derbyshire, than in Flintshire; the result is, that in those districts large works are continually undertaken and prosecuted, whilst in Flintshire and Denbighshire, the great mines are becoming abandoned one after another, no sufficient inducements to enterprising capitalists being given."

The committee cannot close their report, without calling upon the respective owners of mining property, to take into their serious consideration the heavy depression under which the mining district of Flintshire is now labouring, in consequence of so many of our industrious and able-bodied men being thrown out of employ, and who might obtain employment in the mines, provided some encouragement was given to capitalists to come and adventure here, instead of their being driven to lay out their money in the mines of Australia, Chili, Cuba, other parts of America, and other distant countries, to the great detriment of our native land. It is but too truly expressed, in a communication addressed to the committee by an extensive mine adventurer from Cornwall, "That the trade of this country can only be supported by its manufactories and mines; the circulation of money is the only way to keep business alive, and this can only be affected by the landed proprietors, and owners of mineral properties meeting the times; they are doing so in Cornwall, and they ought to do so in Flintshire; foreigners are going a-head of us, and I fear will continue to do so."—J. WILLIAMS, Sec.: *Holywell, May* 4.

SPEED AND POWER OF THE LOCOMOTIVE.

Some exceedingly interesting and important experiments for testing the speed and power of two classes of recently constructed narrow gauge locomotives, were made on the Midland Railway, on Thursday, Friday, and Saturday week. The result of the experiments evidence considerable improvement in the speed and power of the narrow gauge engines, since the trials instituted under the superintendence of the gauge commissioners, and furnish some exceedingly valuable data for the construction of useful passenger locomotives. The locomotives with which the experiments were made are new classes, constructed by the old and well-known manufacturers, Messrs. Sharpe, Brothers, and Co., of Manchester; and the modern, but enterprising, and scarcely less-known firm of Messrs. Wilson and Co., of Leeds. Two of Sharpe, Brothers, and Co.'s engines employed in the experiments, were No. 60 and 61. They are each of the following dimensions:—The number of tubes is 161, of 2 inches diameter outside, and 10 feet long. The heating surface is 847 feet, and the fire-box 72 square feet. The cylinder is 16 inches, the stroke 20 inches, and the driving-wheel 5 feet 6 inches diameter. Two also of Messrs. Wilson and Co.'s engines—No. 27 and No. 26—were employed. They belong to what is called the "Jenny Lind" class. They have each 124 tubes, of 2 inches diameter outside, and 11 feet long. The heating surface is 800 feet, and the fire-box has 87 square feet. The driving-wheel is 6 ft. diameter, and the length of stroke 20 inches. Mr. Kirtley, the locomotive superintendent to the Midland Company, conducted the experiments, which took place from the Derby to the Masborough station, about 40¼ miles. Engine No. 60 took the lead, with a gross weight of 100 tons, when the distance was gone over in little less than 49 minutes, or at the rate of about 49 miles per hour; and that the first 18 miles, up 1 in 330, were accomplished in 25 minutes 12½ seconds, or at an average speed of nearly 43 miles per hour. The steam of the engine was up 2 hours before starting, and the water in the tender was, at the time the train left Derby, nearly at boiling heat. Coke consumed was 16 cwts., or 44·8 lbs. per inch, and water evaporated 10,290 lbs. or 257·2 lbs. per mile. "Jenny Lind," No. 27, with 103 tons, followed, performing the journey in 46 minutes 22 seconds, or at the rate of nearly 52 miles per hour, the first 18 miles up 1 in 330, having been gone over in 22 minutes 44½ seconds, or at the average rate of nearly 47 miles per hour. The total amount of coke consumed, including getting up steam, was 13 cwts., or 36·4 lbs. per mile. We are unable to state the quantity of water evaporated, the measurement not having been made with sufficient accuracy to warrant us in giving it. The next was the engine No. 61, with a train weighing 101 tons, and performing the distance in 54 min. 23 sec. The total consumption of coke was 16 cwts., or 44·8 lbs. per mile; and the water evaporated 10,840 lbs., or 271 lbs. per mile. The quantity of water evaporated per lb. of coke was 6 lbs. In the parallel trip with the Messrs. Wilson and Co.'s engine, No. 26, the amount of coke consumed was 12 cwts., or 33·6 lbs. per mile, and the total water evaporated, 10,116 lbs., or 252·9 lbs. per mile. The water evaporated was 7·5 lbs. per lb. of coke—thus the *six feet driving-wheel engine* of Messrs. Wilson and Co., had travelled at an average speed of rather more than 40 miles per hour—viz.: in 26 min. 19 sec.—while the *five feet six inches driving-wheel engine* of Messrs. Sharpe, Brothers, and Co., went over the same ground in 27 min. 55 sec., or at the rate of 39·3 miles per hour. These are considered the best and most conclusive trips on the narrow gauge line—saying much for the class of engines, No. 27, which performed the distance at an average rate of 52 miles per hour, as above; while an experiment with the *Great A*, an engine built by Mr. R. Stephenson, with only 50 tons, and much better gradients, performed a like distance at a rate of only 47 miles per hour.

RAILWAYS IN SCOTLAND.—Much interest is felt in Scotland, regarding a Government loan to railways. In Aberdeen the feeling amounts to anxiety; 85,000*l.* has been spent on the Aberdeen line, and only 16 miles yet opened; the opening of the remaining 37 would give a wholesome impulse to business in that quarter. The different city and county bodies have taken up the matter, and petitioned in its favour. A speaker, at a meeting of the police board, stated his belief, that in Scotland 3,000,000*l.* of an advance would be sufficient to complete the present lines and branches, and sufficient to bring the capital already laid out into actual play.

DRAINAGE OF RAILWAY SLOPES.—SIR,—In your paper of last week, there is a copy of a report by Mr. Stephens [see *Mining Journal*, April 22] relating to the drainage of the slopes of railway cuttings, for the purpose of preventing the slips which are so frequent; and, as this is a matter which, for want of due attention, is productive of much trouble and expense to railway companies, and of some danger to the public, it deserves a fuller and clearer investigation than has yet been bestowed upon it. These slips occur only in clay, all other strata being either porous enough to allow the water therein to drain off into the cutting, or hard enough to withstand its action. The clay, in its original state, is nearly impervious to water; but, being laid open to the atmosphere, its surface loses that quality, and becomes full of rents and fissures, which receive and retain the water, until it has softened and loosened the surrounding mass, so that it is easily brought down after frost, or by a heavy day's rain. The remedy, therefore, is by draining, not into the porous strata, as suggested by Mr. Stephens, but into the clay itself; and if this were skilfully done, clay slopes would stand as firmly and safely as any other. It should be done as soon as possible after the cutting is completed. If the water in the open channel at the bottom runs to the right, the drains should be inclined to the left, and *vice versâ*. They should be as deep as the clay is likely to be affected by the weather—say 2 ft. Small pipe tiles, about 1 inch in diameter, might be used, as being the best and cheapest; and the drains should be filled up with broken stones, gravel, engine ashes, soil, or any porous substance which may be at hand. The slopes should, in all cases, be covered over with soil about 4 inches deep, and sown with grass seeds, which would give them a much neater and more finished appearance; and the clay being thereby kept in its natural state, they would, in many cases, stand without draining. Allow me to add, that there are many cuttings in which deep drains, instead of the present shallow open side channels, would be highly beneficial; as, by drawing off the water quickly and effectually from the ballast and formation level, they would tend very much to the safety and durability of the permanent way.—JAMES DONALD, Surveyor: Derby, May 2.—*Railway Record.*

A STEAM-ENGINE ON A RAILWAY THIRTY-SIX YEARS AGO.—Probably at the present time the following may not be uninteresting to many of our readers. In the year 1812 "an experiment was made with a machine at Leeds, for the purpose of substituting the agency of steam for the use of horses, in the conveyance of coals on the iron railway, from the mines of J. C. Brandling, Esq., at Middleton, Leeds. This machine was, in fact, a steam-engine of 4-horse power, which, with the assistance of a crank turning a cog wheel, and iron cogs placed on one side of the railway, was capable of moving, when lightly loaded, at the speed of 10 miles an hour." The experiment, which was witnessed by thousands, was crowned with complete success.—*West of England Conservative*

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 9 per Cent., 191⅞ 90	Belgian, 4½ per Cent., 60
3 per Cent. Reduced Ann., 82⅞ ⅞	Dutch, 2½ per Cent., 43 2 ½
3 per Cent. Consols Ann., 82½ 3⅛	Brazilian, 5 per Cent., 70
3½ per Cent. Ann., 83⅛ ⅜	Chilian, 6 per Cent., 81 80
Long Annuities, 8⅛	Mexican 5 per Cent., 16 15⅞
India Stock, 10½ per Cent., 220 1⅜	Russian, 5 per Cent., 86
3 per Cent. Consols for Acc., 84⅛ 3⅛	Spanish, 5 per Cent., 12½ 12
Exchequer Bills, 1000*l.* 2½d. & 3d. 38pm	Ditto 3 per Cent., 21⅛ ⅜

MINES.—The amount of business transacted in mining shares, during the week, has not been extensive; at the same time, we consider a decided improvement upon the previous week has taken place; and if we were to calculate from the inquiries made after shares which are not positively in the market, we might fairly consider that an improved state of things is approaching.

East Wheal Rose bi-monthly account meeting, was held on Friday, the 5th inst., when a dividend of 35*l.* per share was declared, reserving a balance of 2561*l.* in hand. The proceeds of lead ores, sold during the months of January and February, amounted to 10,740*l.*

Devon Great Consols have been in request at advanced prices, and a few shares have changed hands. Referring to the balance-sheet, presented last week at the annual meeting, we inadvertently omitted the word "addition."—The paragraph should have read, "leaves a balance in hand of 14,033*l.*, in *addition* to the ore bills coming due for January and February, amounting to upwards of 17,704*l.*"—thus leaving a balance of 31,037*l.* to the credit of the company. There has been some business transacted in Carwinning Hills, but we are not advised to what extent.

Callington Mine shares have been in request, and a few changed hands at about our last quotations.

Herodsfoot shares still continue in demand, but sellers anticipate higher prices, which has hitherto precluded many transfers.

Business in the following mines has been transacted during the week—viz.: Devon Great Consols, Carwinning Hill, Treviskey and Barrier, Tamar, Tincroft, Callington, Tinvale, Trehane, Herodsfoot, Tremaine, South Trelawny, South Wheal Francis, East Wheal Friendship, Comb Valley Slate Company, Mary Ann, &c.

The annual meeting of the West Wheal Jewel Mining Company was held at the offices, Broad-street, on Monday last, when the balance-sheet presented, showed a return of 1200 tons of copper ore, and 115 tons of tin, for the year; but the prices given by the smelters precluded the directors from meeting their expenditure. It appears that, in taking the standard and produce for the previous week, and that of the corresponding week of 1847, there is a difference of 18 per cent.; and, from the same data, for tin, we find a fall of 10*l.* per ton, thereby occasioning a loss of 500*l.*, instead of realising a profit of 1500*l.* In order to pay off that deficiency, and to erect some requisite machinery, a call of 10s. per share was made, payable by two instalments of 5s., on the 8th June and 8th October next.

The directors of Holmbush have given notice of a further call of 1*l.* per share being required.

In foreign mines, the business done has been principally in St. John del Reys, for which inquiries are still being made, and at advanced prices. A few Bolanos, Kinzigthals, Del Montes, United Mexicans, and Australians, have also been done.

Despatches have been received by the Imperial Brazilian, St. John del Rey, Copiapo, and other South American Companies. Those from the Imperial Brazilian advices returns of 16 lbs. 2 ozs. 16 dwts. of gold from the 14th of Feb. to 2d March; and, at the same time, states the increase of water at Bananal, precludes further operations in sinking before the new machinery is at work. No returns have been made from Bananal since the previous advices, dated 27th Dec., which represented the lode fully as productive as expected; but could not be further explored for the above reason—consequently, it becomes more a matter of time before this rich lode can be fully developed. St. John del Rey reports are furnished in another column. The returns for February show a profit of 1500*l.*

The South African papers advises the discovery of coal at the Cape, which has been experimented upon, and the results have proved highly commendatory. Should its resources, on further development, prove abundant, it will become of considerable importance to the colony, as well as a grand depôt for our steam navigation to and from the East Indies.

The following arrivals of specie has taken place since our last—viz., on Monday evening, the 8th inst., at Southampton, the Peninsular and Oriental Steam Navigation Co.'s ship, *Erin*, arrived from the Mediterranean, having on freight, 161 packages of gold and silver specie (chiefly gold), value 138,220*l.*, the principal portion of which is consigned to the London bankers of the Turkish Government. On Wednesday, the 10th inst., arrived at Cowes, the Ocean Steam Navigation Company's ship, *Washington*, from New York, with 26 packages of gold coin for England, value 26,812*l.* sterling, 27 packages of specie for France, value 8125,000 (which has since been transmitted there), 12 packages for Bremen, value 837,000, and 2 packages, value 810,000, for Southampton. It appears that the amount of coin shipped from New York, for the week, ending April 15th, amounted to 8686,275; and from January 1st to April 15th, inclusive, 83,869,554. From the continent, during the week, *ex Countess of Lonsdale*, from Hamburgh; having two cases, one case, and one bag of gold, consigned to order: *ex Ranger*, from St. Petersburg, 16 casks, one keg, nine boxes, one case, one barrel of specie, also consigned to order.

HULL, THURSDAY.—The fine weather we have experienced since our last report, has improved the prices of many stocks, and prevented others from falling. North British have participated only to a slight extent in the advance; in fact, thirds are lower than they were this time last week—old shares, halves, and quarters, being firmer. Some business has been done in Glass shares, at low prices. Other local stocks have been neglected. There are two or three buyers of Dock shares, a little under the selling price.

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. Rway.	Present actual cost.	Price per share	Last Div.	Traffic Returns. 1848	1847
Birkenhead, Lancashire, & Chesh.	15	997,284	37	5 *p.c.*	£2152	2174
Caledonian	130½	3,594,470	31⅝	—	3851	—
Dublin and Drogheda	35	754,529	52	—	907	858
Dublin and Kingstown	7	473,282	—	7	1870	998
Dundee, Perth, & Aberdeen Junc.	47	415,073	26⅜	8	803	362
East Anglian (Lynn to Ely)	55½	1,062,742	6¼	—	481	—
East Lancashire	24	1,733,915	19	—	992	648
Eastern Counties	221⅝	8,259,709	15	4	13238	11036
Eastern Union	51½	979,926	20	-	1107	977
Edinburgh and Glasgow	53	2,375,745	47	6	3563	3472
Edinburgh and Northern	29	953,207	14⅜	—	1274	—
Glasgow, Paisley, and Ayr	64½	2,097,321	70	7	2015	2259
Glasgow, Paisley, & Greenock	23	845,554	15	4	1140	1031
Gt. Southern & Western, Ireland	110½	1,876,326	24⅜	—	2674	1311
Great Western	281⅛	10,970,636	95	7	22340	19199
Kendal and Windermere	10¼	169,888	23	—	139	—
Lancaster and Carlisle	70	1,395,193	47	4	1907	1343
Lancashire and Yorkshire	124½	7,597,618	86	7	9504	8517
London and North Western	428	21,513,354	135	8	46726	42322
London and Blackwall	4	1,241,061	5	1⅝	1058	943
London, Brighton, & South Coast	161½	6,087,822	32⅛	4	9442	6816
London and South-Western	189	6,264,164	47	8	9100	7211
Londonderry and Enniskillen	14½	145,135	16	—	167	151
Manchester, Sheffield, & Lincolnsh.	46	2,336,624	80	5	2 71*	1995*
Maryport and Carlisle	28	440,851	40	3	500	646
Midland Company	402½	9,853,122	105⅛	7	20539	19066
Midland Great Western (Irish)	36½	583,776	10⅜	—	1030	—
Newcastle and Carlisle	66½	1,184,080	105	6	2350	554
Norfolk	81⅜	1,624,150	70	5	1792	1845
North British	78	2,800,748	23	5	1987	1617
Shrewsbury and Chester	17	780,272	15⅜	7⅛	716	470
South Devon	29	1,609,071	20	5	—	508
South-Eastern	165½	6,932,181	24⅛	6⅛	8258	7298
Taff Vale	38	810,056	—	8	1446	1471
Ulster	36	646,211	52	6	887	903
Whitehaven Junction	12	147,095	—	6	172	198
York, Newcastle, & Berwick	242½	4,466,526	33	9	11036	8515
York and North Midland	230½	3,799,297	69	10	8289	6014

* Traffic for 4 weeks, ending 29th April (including Lincolnshire division) ..£9779 15 4
1847....£8023 4s.—increase in 1848, £1756 11s. 4d.

Traffic between Sheffield and Manchester, for 4 weeks, ending ditto £8811 0 4
1847....£8023 4s.—Increase in 1848, £817 16s. 4d.

Grimsby Docks—Custom-house revenue collected for April £5579 18 5
1847....£4430 10s. 3d.—increase in 1848, £1099 8s. 2d.

FOREIGN RAILWAYS

Amiens and Boulogne	68½	573,338	6⅜	4	1148	—
Antwerp to Ghent (monthly)	31	——	—	—	—	944
Marseilles to Avignon	71½	——	8½	—	1103	—
Dutch Rhenish	57¼	——	8	—	925	944
Northern of France	211	2,000,000	3⅛	4	7809	5721
Orleans to Bourges (Central)	107½	——	—	—	1903	—
Orleans to Tours	72	600,000	32½	4	2404	3087
Paris and Orleans	82	2,011,720	22	12½	—	—
Paris and Rouen	85	2,082,916	15	11⅜	2488	8426
Rouen and Havre	59⅛	——	8	4	1120	2586
Strasburgh and Basle (monthly)	88	——	6	1½	5392	6168
West Flanders ..... (ditto)	—	——	⅜	—	988	

Total earnings for last week, £186,486, being an increase of £20,364 over last year.

EXEMPTION OF SCIENTIFIC AND LITERARY SOCIETIES FROM PAYMENT OF RATES.—There has just been printed the bill introduced into Parliament by the Attorney-General and Sir George Grey, for the purpose of exempting from county, borough, parochial, and other local rates, land and buildings occupied by scientific or literary societies. The first clause declares that the Act of 7th Vic., c. 36, shall apply to societies for purposes of religion, education, charity, science, literature, the useful or fine arts. The certificate of the barrister, or Lord Advocate, is to be conclusive, in the absence of appeal, that the society is within the exemption; and it is further provided, that all proceedings at law, or in equity, which shall be pending at the time of the passing of this Act, shall be determined as if the Act had not passed.

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
1000	Abergwessin	7 ..	—
512	Albert Consols	1 ..	2½
1024	Alfred Consols	4½ ..	14
235	Andrew and Nangilles	28½ ..	10
1000	Antimony and Silver-Lead Mining & Smelting	5 ..	5
1624	Balleswidden	9 ..	18
128	Balnoon Consols	25 ..	25
10000	Banwen Iron Co.	2 ..	—
1000	Barristown	4½ ..	3
4000	Bedford	2½ ..	3
1244	Birch Tor Tin Mine	9½ ..	2
8000	Blaenavon	50 ..	23
100	Botallack	175 ..	80
120	Brewer	5 ..	7
10000	British Iron, New, regis.	10 ..	13
—	Ditto ditto, scrip	10 ..	10
128	Budnick Consols	52½ ..	30
128	Burthy	20 ..	21
128	Callestock	17 ..	30
1000	Callington	19 ..	25
20000	Cameron's Steam Coal	6 ..	5½-6
256	Caradon Copper Mine	9½ ..	2
256	Caradon Mines	22½ ..	17
256	Caradon United	24 ..	5
256	Caradon Wh. Hooper	21 ..	14
1000	Carn Brea	15 ..	90
3000	Carthew Consols	1½ ..	6
2048	Cascade	1 ..	2
112	Charlestown	220 ..	30
166	Cleveland	9 ..	5
512	Coutlithe Hill	⅛ ..	1
1900	Combmartin	7⅛ ..	3
500	Camblawn	5¾ ..	6
128	Comfort	45 ..	90
256	Condurrow	20 ..	30
2560	Cook's Kitchen	14 ..	2
1000	Coombe Valley Quarry	2½ ..	3½
6500	Cornish Mining Co.	2 ..	2⅜-½
1000	Copper Bottom	1½ ..	6½
1024	Cosheen	4½ ..	20
240	Craddock Moor	16½ ..	15
128	Creeg Braws	120 ..	100
500	Cubert Mine	12½ ..	10
1000	Cwm Erfin	3 ..	3½
300	D. Prior & Buckfastleigh	14 ..	26
7100	Derwent	8½ ..	5
1024	Devon & Courtenay Con.	7½ ..	1½-2
1024	Devon Great Consols	1 ..	210
1000	Dinurole	2 ..	5
186	Dolcoath	30 ..	40
2560	Drake Walls	4 ..	4
10000	Durham County Coal	45 ..	8
3000	Dyfngwm	10 ..	12½
256	East Alvenney	10 ..	25
112	East Caradon	47 ..	47
2048	East Crowndale	5½ ..	4½
512	East Combe Silver-Lead	6½ ..	6½
128	East Pool	5 ..	15
100	East Relistian	22 ..	40
9000	East Tamar Consols	⅛ ..	1
—	East Wheal Albert	1 ..	3
91	East Wheal Crofty	125 ..	280
1024	East Wheal Fortune	2 ..	3
1024	East Wheal Friendship	3 ..	3½
128	East Wheal Rose	50 ..	900
2048	East Wh. Rough Tor	¼ ..	2
—	East of Scotland Iron Co.	2½ ..	1½
123	East Wheal Seton	14 ..	10
256	Elborough	1½ ..	2
256	Exmoor Wh. Eliza	3½ ..	6
512	Fowey Consols	40 ..	45
6400	Gadair	2 ..	2
20000	Galvanised Iron Co.	10 ..	9⅛
4000	Gen. Mining Co. for Irel.	1½ ..	1½
2048	Georgia Tin Mines	1½ ..	1⅝
256	Gonamena	32½ ..	30
128	Goonvrea	4 ..	1½
244	Grambler & St. Aubyn	— .	10
100	Great Consols	1000 ..	100
256	Great Callestick Moors	22 ..	25
2560	Great Michell Consols	1½ ..	3⅛
256	Great Resugga Moor	11 ..	4
512	Gt. Wh. Rough Tor Con.	15½ ..	18
100	Grogwinion	5 ..	—
256	Gwinear Consols	7 ..	6
6000	Heigneton Down, Con.	⅛ ..	2½
256	Herodsfoot	18 ..	24
10000	Hibernian	12½ ..	1⅝
239	Hobb's Hill	6 ..	3
1000	Holmbush	19 ..	9
827	Kirkcudbrightshire	5½ ..	5
2048	Lamberooe Wh. Maria	11 ..	4
128	Lelant Consols	90 ..	60
160	Levant	— ..	90
1000	Lewis	15 ..	6½
1000	Llwyn Malees	5 ..	—
3600	Llynvi Iron	50 ..	50
256	Lostwithiel Consols	15 ..	15
6000	Marke Valley	10 ..	2½
5000	Mendip Hills	2½ ..	1
5000	Merionethshire Slate & Slate Slab Co.	1½ ..	2
20000	Mining Co. of Ireland	7 ..	5½
256	New East Crowndale	3⅛ ..	3½
128	North Fowey Consols	37 ..	34
100	North Pool	45 .	450
140	North Roskear	5½ ..	130
256	North Wh. Abraham	1 ..	1
262	North Wh. Leisure	1½ ..	2
128	North Wh. Providence	2½ ..	3
15000	Northern Coal Co.	23 .	2
128	Par Consols	— ..	1000
4000	Pennant	1½ ..	2
100	Penrhiw	30 ..	65
1280	Perran St. George Un.	13 ..	20
128	Perran Wh. Virgin	9½ ..	10
512	Plymouth Wh. Yeoland	6½ ..	23
256	Polsalth Consols	4½ ..	7
112	Providence Mines	35 ..	45
10000	Rhymney Iron	50 ..	20
10000	Ditto New	7 ..	6⅞
2500	Rhoswhiddol Mine	— ..	10
1000	Rosewall Hill	1 ..	5
256	Rosewarva Mines	— ..	12
—	Shotts Iron Company	50 ..	50
1100	South Dolcoath	3 ..	2½
128	South Caradon	10 ..	450
256	Sth. Friendsh. Wh. Ann	16 ..	25
200	South Harvannah	10 ..	25

BRITISH MINES—*continued.*

Shares.	Company.	Pa	Price.
256	South Molton	5 ..	8
256	South Tolgus	7½ ..	42
256	South Trelawney	20 ..	10
128	South Yeoland	16½ ..	20
128	South Wheal Basset	110 ..	70
256	South Wh. Betsey	2½ ..	12½
124	South Wh. Francis	160 ..	220
256	South Wh. Hope	— ..	5
1000	South Wh. Maria	2½ ..	2
256	South Wh. Sophia	4 ..	4½
10000	Southern & Western, Irish	2 ..	4
280	Spearne Moor	30 ..	40
256	St. Austell Consols	9 ..	6
94	St. Ives Consols	— ..	320
128	St. Michael Penkivel	5 ..	10½
999	St. Minver Consols	1 ..	6
1000	Stray Park	43 .	17
9600	Tamar Consols	3 ..	4
1024	Tavy Consols	4 ..	9
6000	Tincroft	7 ..	4
1000	Tin Vale	2½ ..	4½
128	Tokenbury	147½ ..	10
256	Trehane	2½ ..	26
5000	Treleigh Consols	6 ..	3
2000	Trenance	2 ..	50
96	Tresavean	10 ..	210
120	Trethellan	5 .	16
120	Treviskey and Barrier	130 ..	120
288	Trevean	1½ ..	25
128	Trewellard	12 ..	26½
100	United Mines	300 ..	350
256	Wellington Mines	15 ..	25
128	West Basset	45 ..	25
256	West Caradon	20 ..	110
128	West Cargoll	2 .	12
512	West Fowey Consols	40 ..	15
256	West Providence	9 ..	25
200	West Seton	40 .	175
—	West of Scotland Iron Co.	210 ..	210
120	West Trethellan	5 ..	30
256	West United Hills	— ..	5-6
512	West Wheal Francis	1⅜ .	5
256	West Wh. Friendship	9 ..	8
3725	West Wheal Jewel	11 ..	1½
2560	West Wh. Maria	3 ..	1
256	West Wheal Shepherd.	5 ..	2½
256	West Wheal Tolgus	21½ ..	7
256	West Wheal Treasury	19 ..	12-14
5200	Wicklow Copper	5 ..	10⅝-¾
184	Wheal Adams	51 ..	10
1000	Wheal Agar	— ..	10
256	Wheal Albert	10 ..	8
128	Wheal Acland	13 .	2
256	Wheal Allen	2 ..	5
240	Wheal Anderton	21 ..	20
128	Wheal Ann	— ..	500
512	Wheal Ann, Bridford	1 ..	2
512	Wheal Anna Maria	4½ .	5½
1024	Wheal Ash	4½ ..	8
120	Wheal Bal	5½ ..	20
2560	Wheal Barbara	1½ ..	4-5
256	Wheal Benny	10½ ..	6
256	Wheal Blencowe	21 ..	5
256	Wheal Bucketts	20 ..	5
256	Wheal Calstock	5 ..	10½-11
136	Wheal Clifford	190 ..	190
1024	Wheal Coad	⅛ ..	5
128	Wheal Courteany	— ..	20
6000	Wheal Curtis	3 ..	3½
256	Wheal Dyke	12 ..	13
256	Wheal Fortescue	6½ ..	5
388	Wheal Franco	27 ..	30
128	Wheal Harriet	45 ..	50
256	Wheal Jane	21 ..	15
—	Wheal Lawrence	— ..	3½
256	Wheal Louisa	8½ .	8
112	Wheal Margaret	79 ..	350
512	Wheal Mary Ann	5 ..	13
256	Wheal Mary Consols	40 ..	26
210	Wheal Prospect	4 ..	7
120	Wheal Reeth	41 ..	150
128	Wheal Rose	60 ..	15
99	Wheal Seton	214 ..	900
256	Wheal Sisters	30½ ..	17
256	Wheal Sophia	5½ ..	10
128	Wheal Spearne	10 ..	75
128	Wheal St. Ann	9 ..	12
550	Wheal Trescoll	1 ..	12½
260	Wheal Trelawney	72 ..	90
256	Wh. Tremaine (St. Ervan)	4½ ..	20
256	Wheal Tremayne	35 ..	15
128	Wheal Trew	20 ..	21
256	Wheal Trevenna	3 ..	4
92	Wheal Tryphena	140 ..	265
242	Wheal Veniand	29½ ..	30
256	Wheal Vlow (Ferranz.)	⅛ ..	⅛
184	Wheal Vyvyan	— ..	60
256	Wheal Williams	6 ..	14

FOREIGN MINES.

5000	Alten Mining Company	14½ ..	2⅜
15000	Asturian Mining Co.	12 .	3
20000	Australian	2½ .	2½-3
10000	Anglo-Mexican Co.	100 ..	2
12374	Ditto Subscription	25 ..	2½
6000	Barossa Range	⅞ ..	2
3000	Bolanos	150 ..	2½
2000	Ditto Scrip	15 ..	2⅝
12000	Brazilian Imperial	23 .	5½
10000	Cobre Copper Co.	40 .	16-17
8500	Colombian Co. regis.	55 }	⅛
5000	Ditto Scrip	5¼ }	
10000	Copiapo Mining Co.	14 ..	2½
10000	General Mining Ass'n.	20 .	14-16
5000	Kinzigthal Mining Ass.	2 ..	4
20051	Mexican Company	59 ..	—
2000	Mexican & South Amer.	8 ..	1⅝
5000	Mocambus & Cocaes	30 ..	4
29320	Rl. del Monte, regis. } Ditto unregistered }	28⅜ ..	1⅜
	Ditto Red Debentures	— ..	10
	Ditto Black ditto	— ..	5⅜
	Ditto Loan Notes	150 ..	60
7000	Royal Santiago	10 ..	6
2000	Pachuca Mines	4 ..	4⅜
11000	St. John del Rey	15 ..	7⅛
43174	United Mexican Av.	28½ ..	3

LATEST CURRENT PRICES OF METALS.

LONDON, MAY 12, 1848.

	£	s.	£	s.	d.
IRON—Bar *a*..Wales..*ton*	0	0—	6	5	0
,, ..London ..	0	0—	7	5	0
Nail rods ,, ...	0	0—	8	0	0
Hoop (Staf.),, ...	0	0—	9	15	0
Sheet ,, ,, ...	0	0—	10	10	0
Bars ,, ,, ...	9	0—	9	5	0
Welsh cold-blast foundry pig ..	3	10—	4	5	0
Scotch pig *b*, Clyde	2	3—	2	5	0
Rails, average	0	0—	6	10	0
Chairs	0	0 -	4	4	0
Russian, CCND *c*..	0	0—17		0	0
,, PSI	0	0—	——		
,, Gourieff	0	0—	——		
,, Archangel	0	0—13	0	0	
Swedish *d*, on the spot	0	0—11	10	0	
,, Steel, fagt.	0	0—16	0	0	
,, ,, kegs *e*	0	0—13	10	0	
COPPER—Tile *f*	0	0—87	10	0	
Tough cake	0	0—88	10	0	
Best selected	0	0..91	10	0	
Ordin. sheets, *lb*...	0	0—	0	0	10

	£	s.	£	s.	d.
COPPER—Ord. bottoms ..	0	0—	0	0	11
YELLOW METAL SHEATHING	0	0—	0	0	8½
TIN—Com. blocks *g*...*cwt.*	0	0—	3	17	0
,, bars	0	0—	3	18	0
Refined	0	0—	4	1	0
Straits *h*	0	0—	3	14	0
Banca	4	2—	4	4	0
TIN-PLATES—Ch., IC *i*, *box*	1	7—	1	9	0
,, IX ...	1	13—	1	15	0
Coke, IC	1	4 6	1	5	0
,, IX	1	10 6	1	11	0
LEAD—Sheet *k* .....*ton*	0	0—18		0	0
Pig, refined	0	0—18		5	0
,, common	0	0—16		10	0
,, Spanish, in bd.	0	0—	17	0	0
Red	0	0 —19		10	0
Dry White	0	0—24		0	0
Shot (Patent)	0	0—20		0	0
SPELTER—(Cake) *l* on spot	14	5—14		10	0
,, for arrival	0	0—14		0	0
ZINC—(Sheet) *m* export.	0	0—	23	0	0
QUICKSILVER ..... *lb.*	0	0—	0	3	10½

a Discount 2½ per cent. *b* Net cash. *c* Discount 2½ per cent. *d* Ditto in bond. *i* Discount 3 per cent. *k* Ditto 2½ per cent. *l* Net cash.
e In kegs ½ and ¼-inch. *f* Discount 3 per cent. *g* Ditto 2½ per cent. *h* Net cash
m Discount 1½ per cent. *n* Discount 1½ per cent.

IRON—Welsh and Staffordshire rather lower since last *Mining Journal*; Scotch pig more in request among the home buyers. COPPER steady.
TIN.—Very little doing, and the present quotations do not appear to be firm.
TIN-PLATES and LEAD exceedingly dull.
SPELTER is in a very unsettled state, owing to the blockade of the Elbe, &c., by the Danes; a sale was made on Wednesday at 14*l.* on the spot, and beyond this there are not buyers; holders demand 5s. to 20s. per ton more, according to instructions from their principals abroad. QUICKSILVER is 1½d. per lb. less than it was last week.

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the last week:—Silver coin to Rotterdam, 45,050 ounces; ditto Hamburgh, 30,240; ditto Belgium, 3200—Silver bars to Rotterdam, 170,000; ditto to Hamburgh, 96,000; ditto to Havre, 3200—Gold coin to Rotterdam, 8793; ditto Hamburgh, 1184; ditto Havre, 527; ditto Belgium, 2560; ditto Mauritius, 6400.—Gold coin to Harlingtom, 830*l.*

GLASGOW PIG-IRON TRADE, MAY 11.—We have had a moderate amount of business in pig-iron this week. Buyers, for the most part, will not give the price asked; while, on the other hand, holders of the article seem easy about selling, and maintain the price. The transactions that have taken place, have been chiefly small lots, and have been done at 44s. to 45s.—cash. To-day the market is firm, and no alteration.

— The following is an account of the exports for the first four months of 1848, as compared with the corresponding period of 1847, from Broomielaw, Port-Dundas, and Kirkintilloch:—

		1847.	1848.
January	*Tons*	21,690	17,555
February		15,036	25,030
March		27,641	36,278
April		31,843	32,392
Total	*Tons*	96,210	112,255

Making the shipments in 1848 exceed those of 1847 by 16,045 tons.

EXPORTS OF METALS TO ALL INDIA FROM LONDON AND LIVERPOOL,

FOR THE FIRST FOUR MONTHS OF 1847 AND 1848.

Metals.		1847.	1848.	*In. in* 1848.	*Dec. in* 1848.
Spelter	*Tons*	265	627	362	—
Copper		1981	1305	—	676
Iron, British		3045	6180	3135	—
Ditto, foreign		394	145	—	249
Tin-plates	*Boxes*	1294	1311	17	—
Lead	*Tons*	525	171	—	354
Steel		307	51	—	256
Quicksilver	*Bottles*	—	—	—	—

IMPERIAL BRAZILIAN MINING ASSOCIATION,

Winchester-house, Broad-street, London, May 13, 1848.—The directors of this association have, under the powers vested in them by the Deed, made a CALL of TEN SHILLINGS on each of the shares of this association; and the proprietors are requested to PAY the same on their respective shares, on or before the 14th day of June next, to the London Joint-Stock Bank, Princes-street, the bankers of the association.

No transfer can be made until payment of the call.

GEORGE THOMAS, Acting Director.

LEAD ORES.

Sold at Liskeard on the 10th May, 1848.

Mines.	*Tons.*	*Price.*	*Purchasers.*
Wheal Trelawny	88	£13 16 6	Newton, Keates, & Co.
Amount of money		£1216 12s. 0d.	

Sold at Aberystwith.

Llynmalies	16	£10 10 0	Newton, Keates, & Co.

BLACK TIN,

Sold on the 30th April to the Millanear Smelting Works.

Mines.	*Tons cwt. qr. lb.*	*Per Ton.*	*Amount.*
Tremayne Mine	5 13 3 14	£41 2 6	£234 3 1
ditto	3 4 0 26	43 10 0	139 14 1
Carriage			4 9 0
Amount of money		£378 6s. 2d.	

Sold at Truro, May 8.

Plymouth Wh. Yeoland	6 17 1 2	£49 0 0	£274 10 8

COPPER ORES.

Sampled April 26, and Sold at Andrew's Hotel, Redruth, May 11, 1848.

Mines.	*Tons.*	*Price*	*Mines.*	*Tons.*	*Price.*
Carn Brea	100	£4 3 6	Levant	52	£7 6 6
ditto	95	4 7 6	ditto	42	5 11 0
ditto	93	9 3 6	Tywarnhayle	77	2 12 6
ditto	92	3 11 6	ditto	74	2 12 0
ditto	91	6 3 0	ditto	48	1 13 6
ditto	85	7 11 6	ditto	32	2 14 6
ditto	79	9 3 6	Wh. Prosper	56	2 17 0
ditto	65	3 9 0	ditto	54	2 11 6
ditto	63	6 11 6	ditto	48	3 3 0
ditto	45	7 11 0	ditto	33	1 3 0
ditto	34	0 15 0	ditto	16	0 5 6
Par Consols	106	5 15 6	Wheal Friendship	8	2 9 6
ditto	101	6 9 0	West Wh. Treasury	75	4 2 6
ditto	75	5 5 6	ditto	56	5 2 6
ditto	63	7 14 6	Wh. Busy	43	2 1 6
ditto	62	7

NOTICES TO CORRESPONDENTS.

It will at all times save much trouble, and frequently considerable delay, if communications are simply directed— To the Editor,
Mining Journal Office,
26, Fleet-street, London.

Also, to avoid trouble, Post-Office Orders should always be made payable to William Salmon Mansell, as acting for the proprietors.

Erratum.—In the discussion on Mr. Craddock's Boiler and Condenser, in our last No. last line, *for* "Mr. Craddock," *read* "Mr. Crampton."

Tutwork and Tribute.—The letters of "Fair Play," Capt. Seymour, and a "Mine Agent," are in type, but their insertion is unavoidably postponed until our next

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, MAY 13, 1848.

Although the question of the abolition of the duties on foreign copper ore may be considered as virtually settled, the advocates for their continuance are again in the field, with their "stale and unprofitable" calculations, and holding forth, *in terrorem*, their monstrous powers of *clairvoyance*, by which they foresee for Cornwall and Devon the utter destruction of property, the stoppage of all the mines, and the annihilation of all the inhabitants, if this accursed (?) bill should pass into a law. The two or three Protectionist organs of the western corner of this prolific isle are weekly giving us a repetition of the forthcoming poverty and horrors which are to befal the numerous and hardy race of miners. "Publius" is coming out again with his lengthy rhodomontades and his fractional calculations, amounting absolutely to nothing; and, in the *Cornwall Gazette* of Saturday week, he inflicts the readers of that publication with three columns and a bit, in which, with the exception of his unfair, and partially uncourteous, review of the speeches in the House of Commons, on April 17, there is not an idea, or a calculation, that he has not belaboured us with several times over during the past two years. All this is to induce the House of Lords to reject the measure; and, should they not be successful there, we expect they will petition the Queen in Privy Council to use all her privileges to preserve this *important* addition to the revenue—being under 50,000*l.* a year—and a decided injury to a vastly greater extent to our foreign copper trade, our shipping interests, and the exports arising from all the staple productions of the country.

We trust, however, these dreamy gentlemen who have so long remained under the chloroformic influence of ancient predilection, that they cannot have been aware of the vast changes which have taken place in the commerce of the world; or, that were England to return to the system of tariff adopted 30 years since, or even now remain stationary, she would be shut out entirely from the markets of the civilised portion of the globe. In loosening the cords by which trade has been fettered, we do not stand alone; and it is rather a singular coincidence that, while the mighty question of our foreign copper duties was causing such warm discussion here, the Chilian Government, not over remarkable for the liberality of their tariff with regard to English shipping, &c., were issuing a decree of considerable importance to the foreign commerce of all nations, particularly that of England. As a soothing palliative, we administer an abstract, for the satisfaction of our Protectionist friends:—

"The preamble sets forth that mining industry was greatly prejudiced by the enhanced prices of the instruments and materials which were required for the mining labourers and the smelting works, because it was necessary to purchase them in the principal ports, by which the expenses of carriage are much increased; and that, therefore, to facilitate the interchange of the articles consumed, it was requisite that the number of vessels for carrying them should be increased, which would have the further advantage of promoting the exportation of national products. In consequence, it was decreed that foreign and national vessels, which go to load metals to the smaller ports of the republic, shall be allowed to carry their tools, machines, and materials, for smelting furnaces, with coal and iron for the use of the mines. The same privilege is extended also to vessels which may, without intending to ship metals, choose to pass to the said smaller ports in charge of the materials mentioned. To obtain the permission, or privilege, however, a memorial of the consignee of the vessel must be presented to the customs administrator of Valparaiso, or other principal port, accompanied with a satisfactory bond for the value of the duties of internal transit. To the list of the articles which vessels, destined for loading metals, may carry to the smaller ports, are added sperm and whale oil, guano, cocoa, and coffee, as already disposed by law of 1847. In all cases where the machines and commodities before referred to, should not form part of the cargo of the vessel, they may be taken and shipped from the stores of private merchants, or transhipped from other vessels, according to the mode prescribed by existing regulations."

Now, although this evidently arises from nationally interested motives, in consequence of the scarcity of mining implements, here is at once a new market for the *iron trade* at least, and, we doubt not, for extensive orders for many of our staple products and manufactures; and while her foreign trade is thus extended, Chili will find her internal activity, wealth, and population, increased. So it has been proved in every instance yet on record, that, in private trade and commerce, the being content with diminished profit doubly increases the sales; and so with nations—the snapping of every cord which fetters enterprise, and every additional facility in like manner, gives fresh buoyancy to adventure, and the exercise of ingenuity; and while it adds to private wealth in a tenfold manner, enriches and establishes on a sure foundation the stability of nations.

We have, on many previous occasions, called the attention of our readers to the proposed docks at Swansea, which, if completed, would render that port of equal, if not greater, importance than any on the south-western coast of this kingdom; and to the unfortunate differences which, for a considerable period, existed between the two bodies of London and Swansea directors, and which promised not only to injure the best interests of the company, but protract, if not entirely put a stop to, the construction of the works, by entering into expensive and most unwisely-promoted lawsuits. We have called on all parties concerned to endeavour to promote peace, drop all personal and party opposition, and, by strenuously putting their shoulders to the wheel, advance the early completion of the works, and thereby considerably benefit the population of Swansea, and the best interests of the shareholders at large.

It is with much gratification we find from a notice, which appears this day in our advertising columns, that this great desideratum has at length been effected, and all differences satisfactorily settled—the London directory having resigned, entered into all necessary arrangements, and done all those acts which the law requires, to vest the sole and exclusive management of the company's affairs in the Swansea directory. By whom, or by what means, this desirable pacification has been brought about, it is not now necessary to inquire. Although considerable unnecessary delay has taken place, we trust it will, in the end, appear not to have been any serious detriment to the cause; but that, by a steady perseverance on the part of the direction, backed by a ready response on the part of the shareholders to the calls necessary to be made, we shall soon see the work completed—ships laden with the wealth of the world covering its waters, re-freighted with the produce of South Wales,—and thus pouring the seeds of industry, plenty, and contentment, into the heart of the principality.

There is nowhere, perhaps, within the limits of the United Kingdom, at this moment, a single public interest in so great danger of being ruined, beyond all remedy, as our network of navigable canals, for the transit of the heavy merchandise of the kingdom. The erection of steam into a new working, and conveying power amongst us has lowered the claims, and lessened the value, of all other descriptions of conveyance; and although, from its greater speed and precision, steam is entitled to the rank and to the general preference it has obtained, we cannot see, without much anxiety, other great interests bending or breaking down, beneath the weight of this new atlas, before the strength of this young giant, whose birth and upheavings from the deep are but of yesterday. It cannot be necessary, we suppose, to set out in detail the length of our canal works in measured miles, nor the amount of capital absorbed in their construction. We believe, as commercial works, they well fulfilled the purposes for which they were originally called into existence, and over and over again paid back the expenses of their creation. Still they need not, and ought not, on that account, to be allowed to lie fallow, nor to be, in any sense, neglected, because they have thus yielded their full fruits in their season. There are plains, at this moment, waving with the golden gifts of Ceres, which have gladdened the husbandman with the harvests of a thousand years, but will not, therefore, be now abandoned, but ploughed and wrought the more, for the sake of the generations which are ever crowding in upon the horizon. With these motives—that is, with a view to the immediate revival and future productiveness of the great canal interest of the kingdom, should the holders of this description of property exert themselves—there appears to be no hindrances of any considerable work in their way. The tunnels, the earthworks, the locks, and waterways, are all formed, and waiting the echo of a voice, that can charm them into usefulness and activity. The great prize to be won on canals is speed. If, by an application of a small steam-tug—perhaps, of 25-horse-power—a string of boats can be run up from Birmingham to the metropolis, and goods landed, within the 12 hours, and from other parts of the country more distant, or more near, within a proportionate time, we should say, that one great objection against canal conveyance would be effectually taken out of the way, and the return of more than its former amount of traffic absolutely secured. The drawings and description set forth at large in last week's Mining Journal, by which the old and cumberous system of draft horses and towing paths will be got rid of, and a new power applied to river and canal towage, form together a proposition fully meeting the necessities of the case, and calculated to bring canals on the carrying stage again, as a substantive competition with railways. To that description we beg to refer all our readers interested in the preservation and improvement of canal property.

A short time since, when, for a moment, we brought before our readers the question of labour, and suggested some indirect means by which the circumstances of the labouring classes might be, in some degree, raised and improved, we presented what may be called the English and the common sense aspects of the question only, and not the more imaginary, if not mischievous, features, which have been stamped into the subject by the heat of the continental press. From among these we select two as patterns of others, which it is not, by any means, necessary to notice; first, that operatives ought to have a rateable participation in the profits of business; and, second, that the skilful and the unskilful, the energetic and the slow, should receive a remuneration common to all, and not, at any time, in proportion to the value and the amount of work done. It is more than probable, in our judgment, that the bare statement of these tenets will be sufficient to ensure their rejection in any honest and well-ordered community. We shall not certainly discuss such propositions in this Journal, believing there is no single spot in Europe where they would be, for one moment, entertained, except, perhaps, in the vortex of some wild revolution; but, although an organisation of labour, on these principles, would be an organisation inexpedient, inexcusable, and unjust, it does not follow, that there is no better foundation on which to raise and renovate this wide-spread and popular element, so that it may bear its just, and reasonable, and legitimate fruits. We have already said, that a legislative interference, to the extent of fixing the value of labour, or of extorting from the masters a part of their profits, to swell the schedule of the operative classes, or to confound the wages of the shrewd and the nimble-handed with the unskilful and the slow, would be a monstrous invasion of private rights, and one of the most efficient of conceivable measures for the ostracism of capital, and for the banishment of labour itself, which will follow capital, in whatever region it takes up its residence. Labour, in fact, must be necessarily destroyed when the stratum is taken away, which forms the flooring and foundation upon which it rests. If you lay the lash upon capital—if you tyrannise over it in that fashion—it will flee away to find a freer theatre for its exertions, and draw after it the arts and the occupations of civilised life. Whatever are the true remedies in the case, these at which we have glanced are, undoubtedly, the false ones; they could not lessen—they could not alleviate—the circumstances which press upon us, but are calculated rather to increase their weight and their aggravation. So far as it is in the power of Government to lighten the fiscal burthens, and to cheapen the common elements of sustentation, so far the case admits of a legal and a legislative treatment; but great caution must be used when marching even in that direction, for you snap the rod of his power, and the staff of his strength, when you induce the labouring man to rely on anything beyond the diligence and the industry of his own hands.

What is the duty of masters and employers, as a class, to those by whose time, and toil and labour, they are enriched, there does not remain to us at present leisure for saying. Upon them, as a body, there rests at this moment, a solemn and an unalienable responsibility—they are answerable at the moment we write for the social peace of this realm; and we grieve to think that by possibility they may endanger it. In 10,000 instances they may give contentment to those who serve them, by exhibiting a reasonable degree of kindness and of consideration for their comfort—by a deportment proving them to have some solicitude for their happiness—by such attentions, in short, as cost them nothing, yet, nevertheless, are above all price; or, further still, by taking such opportunities as the course of business, and the turns of trade, may present them with of increasing their material comforts, by raising, within just limits, the remuneration and the reward of those by whose skill and drudgery they have risen unto fortune. But whatever benefits might arise from an interposition of the governing authorities of the State, or from the awakened consideration and liberality of the masters, the truest and most efficient restorative the case admits of will, we have no doubt, be found in the greater skill, the greater industry, and the more watchful and sustained economy of the labouring classes themselves.

The Singapore *Free Press*, adverting to the intelligence which they receive by each mail, of the increasing interest which the far East is exciting in this country, and the contemplated opening of mineral wealth, by the Eastern Archipelago Company, states that—"There can be little doubt that such a company will find an ample scope for its enterprise, whether it is confined to Borneo, or embraces the wider range of countries which its title would seem to point out. Borneo, no doubt, alone offers the most varied objects to which the capitalist might direct his attention when in search of means for profitable investment. Her soil, in some parts, is admirably fitted for every species of tropical cultivation, whether we look to the rearing of spices, or wish to follow the less tedious cultivation of grain. In other parts her soil teems with mineral wealth—diamonds, gold, &c., not omitting, what now holds no mean place among minerals—coal, which is found abundant and good, in various parts of Borneo. The forest of Borneo also abounds in many valuable natural productions, which an active commerce would, no doubt, bring to light in abundance. If the company should desire to extend their views to other places, the Malay Peninsula offers an ample field in its capacity for cultivation; its extensive of depôt gold, tin, and coal, and its numerous other resources, many of which, up to the present time, have been but imperfectly, or not at all explored. In short, it only requires that capitalists should deviate a little from the beaten path of buying and selling, and make use of the influence and opportunities which their wealth would give them, to find in the Malay Archipelago almost unbounded stores of the most valuable articles of commerce, ready to be called forth by an intelligent and prudent search for them."

IMPROVEMENTS IN ELECTRIC TELEGRAPHS.

Mr. George Petrie, of Mountford-street, Whitechapel, in the county of Middlesex, has recently specified a patent for "Improvements in Electric Telegraphic Apparatus," which appears to be a great advance upon the present systems—the principal feature being the constructing an apparatus that shall enable the telegraphist, or any public person who employs the telegraph, situated at any station, in a line of telegraphs, or system of telegraphs, to operate upon any distant part or parts of the general telegraphic apparatus, so as to connect, into one long circuit, any number of consecutive circuits, or branch circuits, or so as to divide any circuit, or circuits, into any number of smaller circuits; also, so as to cut off from, and introduce into, any of the main, or branch circuits, any number of conversing telegraphs, recording telegraphs, alarums, or any other kind of telegraphic apparatus, in order that intelligence may be transmitted privately from one place to any other place or places; and, in order that the intelligence may be signalised, or recorded, at the distant place or places, or signalised at some places, and recorded at others, as may be required; also, in order that different kinds of intelligence may be transmitted from any place to any other place or places, or to all places simultaneously, throughout the whole system of main lines and branches. This invention, it appears, can be advantageously applied either to Morse's, Davy's, or Bain's telegraphic apparatus.

Smelting in Spain.—In the last Number of the *Mining Journal* we inserted some remarks on the progress of mining in Spain and the Philippine Islands, and the interest the Government were evidently taking in the prosperity of the mines, and the encouragement and protection given by the laws to the adventurers. The produce of argentiferous ores is rapidly on the increase, and the consequence is, a corresponding extension of silver smelting establishments. There are now in Spain 18 of these establishments, producing silver from the ores in the various districts of Larca, Garucha, Villaricos, Cuevas de Vera, Mairena River, Aquilas, Santa Lucia, Escombreras, Alumbres, Porman, Alicanti, and Valencia; and in the district of Adra is situated the most important of all, possessing a large smelting house, where are reduced the rich argentiferous ores of the Sierra de Gador, and those of the Sierra Almagrera. The premises here contain eight reverberatory furnaces, two English cupelling houses, with amalgamation floors, also a small steam-engine, for the purpose of ventilation, and ensuring good currents of air through the several flues and chimneys, and for propelling the machinery employed in the formation of lead-pipe, sheet-lead, shot, &c. These several smelting establishments take the ores from twenty to twenty-four largely producing mines, situated in their several districts, and there are some very considerable advantages connected with them, the principal of which is a large supply of fuel and water. The great obstacle to the full development of the mineral wealth of Spain has been its hitherto disturbed state, and the consequent prevention of the influx of British capital; but as, in some measure, confidence is restored, the Government have become alive to the blessings of peace, and are now determined to protect and aid the mining adventurer, and as some of the most wealthy men in Spain are taking the lead, we may hope, very shortly, to see a very different aspect of affairs, and the star of prosperity once more hover over the luxuriant lands and mountains of Iberia.

Pile Driving by Pneumatic Pressure.—At the Society of Arts, on Wednesday evening last, a paper was read by the secretary, on Dr. Potts's patented system of pile-driving by the pressure of the atmosphere. We have so often described the system, and the natural laws by which it is governed, that to enter at length into the subject, on the present occasion, would be superfluous. Mr. Potts (the doctor's son) ably superintended the experiments with the working models exhibited. An upright glass vessel, containing a quantity of wet sand, was on the table, in which was placed, a few inches deep, a long glass tube, resembling a hollow pile: even on this small scale it appeared impossible to press it many inches in the sand; but on placing an air-tight disc on the upper surface, in the centre of which was an orifice, connected by a flexible tube with a receiver, exhausted of air, and opening the communication between them, the tube descended apparently with as much ease as it would have done in water only. Many theories have been broached as to the *rationale* of this singular natural operation; but Dr. Potts, who has made the subject his study for years, considers that a mass of sand, or shingle, at rest under the superincumbent pressure of the atmosphere, consists of innumerable series of angular arches, formed by the sharp fragments of the mass, and which accounts for the impossibility, by mere mechanical power, of forcing even a sharp iron rod more than a few feet into wet sand; but when any hollow body, such as a cylindrical or square hollow pile, is placed on the surface, and the air exhausted, the resistance of these arches is broken up, and the atmospheric pressure, still acting on all the surrounding surface, forces the sand and water into the tube, on the principle of the common pump, which then sinks by its own gravity and the pneumatic pressure on its surface. The possibility of erecting a lighthouse on the Godwin sands, on this principle, was noticed; and some beautifully finished diagrams, by our correspondent, Mr. G. Shepherd, of his proposed lighthouse on that dangerous spot, were exhibited. They presented a largely improved plan of the one we published, with woodcuts, in the *Mining Journal* of Nov. 27, 1847—to which we refer all who are interested, as worthy of perusal.

On Economising Fuel in Gas-Works.—At the last meeting of the Royal Scottish Society of Arts, Mr. W. Kemp stated that he had made a valuable discovery in economising fuel at Galashiels Gas-Works, by which almost all expense of fuel is saved. Where coal tar is burned, it has an injurious effect on the furnace bars and retorts, the greatest annoyance arising from the rapid clinkering up of the furnace bars, to remove which the firemen had frequently to throw water into the furnace, which caused the rapid destruction of the bars. To prevent this, the idea occurred to the author, of using the exhausted tan bark of the tan works, which had the desired effect. The force pump for injecting the tar into the furnace was next thrown aside, as it was found that the dry bark absorbed tar equal to its production at the works. His method is as follows:—The bark is dried and mixed with the coke of the gas coal, bulk for bulk; a pailful of tar is thrown upon it, not quite so much as it will absorb, and it is then turned over. The mixture burns with a fine clear flame, attended with less smoke than formerly; the furnace bars, by remaining unclinkered, admit the oxygen freely for the combustion of the fuel. Where tan bark cannot be had, peat moss, loose and dry, makes a good substitute. Mr. Kemp stated that, in one year, 126*l.* was saved on furnace coal; and he has pledged himself that, in future, not a penny shall be required for that article.

Heaton's Patent Improvements in Locomotive Engines.—[Patent dated November 9, 1847. Patentee, George Heaton, of Birmingham, engineer. Specification enrolled May 9, 1848.]—These improvements consist in the application of counter-balance weights, moving in an opposite direction to the pistons of the steam cylinders, in order to prevent the oscillation and uneasy motion to which locomotive engines have hitherto been subjected. The mode of applying these counter-balance weights preferred by the patentee, but to which he does not confine himself, is as follows:—On each end of the axle of the driving-wheels is placed a crank, to which is united a connecting-rod attached at the other end to the counter-balance weight, which is suspended between two rods, so as to swing readily to and fro, or held between fixed guide-rods, to admit of its sliding easily. The position and arrangement of the counter-balance weight in respect to the pistons, should be such, that they should always move in the direction opposed to that of the latter; and should, moreover, be equal in weight to that of the pistons and gear for working them.—*Mechanics' Magazine.*

LITERARY NOTICES.

The Statistical Companion. By T. C. Banfield, Statistical Clerk to the Council of Education; and C. R. Weld, Esq., Assistant Secretary to the Royal Society.—London: Longman, Brown, and Co.

Numerous as are the statistical tables published for the use of the general reader, the professions in general, the mercantile world, and man of business, they are rarely found to contain more than a detached portion of what may be obtained from Parliamentary, parochial, and other official returns. The little work before us is an exception to the general rule—for in it we have no less than upwards of 230 tables, in all the various phases of business, the arts and sciences. That there is a vast bulk of statistical matter obtainable, which we do not find in this publication, we readily admit, but a most judicious and useful selection has been made; and we recommend this little volume to all who, for business or instruction and edification, require a text-book at hand, to which they can refer with confidence and pleasure.

Facts and Figures: principally relating to Railways and Commerce. By Samuel Salt.—London: Longman, Brown, and Co.—Manchester: Bradshaw and Blacklock.

This little volume is laid before the public, as a text-book, for all who are interested in canals, railways, and commerce generally. It consists of numerous tables, on the statistics of inland trade—increase in consumption of articles of food and domestic use, brought about by the introduction of the railway system—capital employed—number of persons; numerous articles of food, which never before travelled far from the agricultural district in which they were produced, are now sent all over England. In addition to these tables, are notices of the Scotch and other iron and coal trades; and extracts from a heterogeneous mass of reading, from the most pithy and well-written articles, and Parliamentary proceedings on railways, for several years past. It is an excellent little work, not only for reference, but would wile away many an unoccupied half hour. The index at the end is a most complete reference to every paragraph in the volume.

PROGRESS OF FRENCH MINING INDUSTRY.

[FROM OUR PARIS CORRESPONDENT.]

The peaceable manner in which the opening of the National Assembly has passed off, the general quietude which prevails, and the appearance of the future, have had a very favourable effect in commercial circles. It would be premature to say, that confidence has become re-established; but it is no exaggeration to declare, that the dreadful alarm, which was felt a few weeks ago, has entirely ceased. A striking improvement has taken place in the public funds, and in all descriptions of securities. In mining and metallurgic enterprises there have been several transactions on the Bourse; and the accounts which we receive from the provinces, as to the position and prospects of those enterprises, are, on the whole, satisfactory. It is, of course, impossible to predict what will happen; but most people are very sanguine in the belief, that we have got through the worst, and that we may confidently expect commercial prosperity to return.

It is not at all certain that the National Assembly will vote the project for the purchase of the railways.

It was a matter of great interest in the mining circles, to see what effect the revolution would have on the imports of coal, iron, &c. It was, of course, to be expected that a falling off would take place during the month of March, seeing that there was an almost total suspension of every branch of commercial enterprise; but the returns from the Board of Customs show that the falling off, though not inconsiderable, was still far from being so great as had been expected, and nothing at all to be compared to the decline in several of the other principal objects of importation. Thus, for example, the importation of coal, during the month of March last, was only 1,624,503 metrical quintals—whilst in March, 1847, it was 2,087,058; and, in March, 1846, 1,458,062. Of cast-iron the importation was 73,242 metrical quintals; in March, 1847, 101,769; and in March, 1846, 54,326. Of lead the import in March last was 12,695 metrical quintals; in March, 1847, 19,367; and in March, 1846, 17,101. Of zinc it was 5880 metrical quintals in March last; 10,132 in March, 1847; and 11,490 in March, 1846. In the import of copper, there has not only been no decrease, but a very remarkable increase. In March last it was 8945; in March, 1847, 5076; and in March, 1846, 2618.

In the first two or three letters I wrote you after the revolution, I expressed a confident anticipation that, whatever might be the effects of that great political convulsion on mining and metallurgical enterprises in this country, it would be favourable to the imports of British coal and iron. The official returns now before me bear out the correctness of this anticipation, in the most striking manner. We have just seen what was the total importation of coal in the months of March of 1848, 1847, and 1846. Of that total quantity, 480,450 metrical quintals were received from England in March last; 303,945 in March, 1847; 438,828 in March, 1846—this gives an increase of 176,505 metrical quintals (1765 tons) for March, 1848, over March, 1847; and 41,622 metrical quintals over March, 1846. The decline in the total import of coal has been to the prejudice of Belgium. In last month, there were introduced from that country only 956,373 met. quin.—whilst in March, 1847, the quantity was 1,570,779; and in March, 1846, 856,693.

In the importation of iron, the increase in favour of England is still more remarkable. In March, 1848, the quantity from England was 38,558 metrical quintals; in March, 1847, only 17,943; and in March, 1846, 23,232. It is to the prejudice of Belgium, also, that this decline has taken place. In March last, only 30,774 metrical quintals were received from her; whilst in March, of last year, the quantity was 79,868. The falling of in the import of zinc is almost exclusive in that from Belgium.

With respect to copper, the importation from England, in March last, was 2502 metrical quintals; March, 1847, 3426; March, 1846, 2331: from Chili, it was 327 in March, 1848; 20 in March, 1847; and *nil* in March, 1846: from other places, it was 5666 in March, 1848; 1631 in March, 1847; and 287 in March, 1846.

A general meeting of the shareholders of the Zinc Mines and Works of Stolberg is to be held at Aix-la-Chapelle, on the 31st of May next. The shareholders of the Coal Mines of Long-Pendu are to meet at Paris, on the 25th. Those of the Iron-Works of Aveyron *(forges de Decazeville)* are to meet in Paris on the 16th.

On the 27th, the Ministry of Marine, at Rochefort, will receive contracts for the supply of 2520 kilogrammes of *acuis fondus*, 825 of yellow copper, and 3,100,000 of coal. On the 20th of May, at Brest, 223,600 of copper, in sheets, for sheathing, &c.; the 27th of May, at Lorrent, 800,000 of cast-iron; the 22d of May, at Nevers, 300,000 of iron *laminé*.

Several ironmasters have been returned to the National Assembly.

PREVENTION OF PRIMING.—In an article "On the Prevention of Priming in Steam-Boilers," Mr. W. Scotton, engineer, R.N., proposes to use oily or fatty substances for the prevention of priming. It is a well-known fact that oil, or tallow, or any fatty substance, is a great preventive of priming in ordinary steam boilers, but for locomotive boilers the case is quite the reverse. For instance, when a new engine is placed on a line, it is continually priming until the boiler is well washed and cleansed; locomotive boilers all being tubular, and having very little steam room, the space allowed is necessarily very small. Another disadvantage attending the use of oily matters is, their tendency to cause the impurities held in solution in the water to be deposited on the lower plates of the boiler, in contact with the fire. As a proof of the above facts, I beg to state, that I fixed a high-pressure engine, of 10-horse power, at the London-bridge Railway Station, about six years ago; but the steam from the exhaust-pipe proving an annoyance on the line, and there being a water-tank over the engine, containing 18,000 gallons, I proposed, and was authorised to fix, a coil of 4-inch pipe at the bottom, which effectually condensed the whole of the steam. In a few weeks after, however, we were nearly causing an explosion by returning the condensed water back to the boiler, in consequence of the oily matter combining with the water from the steam cylinder. We were greatly surprised one day, while the engine was at full work—the steam being at that time at a pressure of 50 lbs. on the square inch—to hear a loud hissing noise in the furnace. On opening the fire-door, we saw that a row of rivets, 5 ft. long, had given way, and that the water was coming out with enormous force. We instantly put out the fire, and on the following morning I went into the boiler, to ascertain the cause of so unusual an accident—the boiler being provided with a gauge-glass and two gauge-cocks, and the water at the time having been rather higher in the glass, and fuller at the cocks, than usual. On entering the boiler, I found a mass of sediment over the whole of the rivets which had given way, about 3 in. thick, which prevented the water coming in contact with the plate of the boiler, and thereby caused the rivets to become red hot, and a consequent expansion of the sediment, which allowed the water to come suddenly in contact with the rivets and plates of the boiler. We examined the sediment taken out, in various ways, and found it to contain at least 50 per cent. of oily matter. The water used was Thames water. Since that time—that is to say, for the last five years—we have used, as a preventive against a similar occurrence, a small quantity of common soda, which, combining with the oil or tallow, causes the whole of the earthy matter held in solution to float on the surface of the water; and, by means of a blow-off pipe, placed on the surface of the water in the boiler, the whole of the sediment is removed. The consequence has been, that we have had not the least occasion to clean the interior of the boiler, the plates and rivets remaining as clean as when first manufactured.—JOHN HARRIS, Engineer: London-bridge Railway Station, May 2.—*Mechanics' Magazine.*

RECIPE FOR MAKING AXLE GREASE FOR RAILWAY CARRIAGES.—Some mystery has been made on this subject, and patents taken out for various articles, but I believe, from experience, the following is the best:—Take 56 or 60 lbs. of soda, dissolve in about 3 gallons of water in a small boiler; when quite dissolved, to be poured into a large tub or wooden cooler, containing from 30 to 36 gallons of cold water, and well mixed. Tallow to be melted (according to the proportions hereinafter stated) in a 60-gallon boiler. After being thoroughly dissolved, palm oil is to be added, and then the mixture allowed to boil; as soon as it boils the fire to be taken out of the furnace, and the mixture to be cooled gradually, and to be frequently stirred while cooling. When cooled down to blood-heat (98°), it is to be run off through a seive into the cooler containing the water and soda, and it must be stirred during the whole of the time it is running off, in order that it may be properly mixed.

Proportions of Oil and Tallow.

Summer Weather.		Winter Weather.	
Palm oil	1 cwt. 1 qr.	Palm oil	1 cwt. 3 qrs.
Tallow	1 „ 3 „	Tallow	1 „ 1 „

In open Weather (Spring or Autumn).

Palm oil	1 cwt. 2 qrs. } equal quantities.
Tallow	1 „ 2 „ }

—*Salt's Facts and Figures.*

DR. POTTS'S INVENTION FOR SINKING PILES.—In the House of Lords, on Tuesday evening, Lord LYNDHURST presented a petition from Dr. Potts, praying for inquiry into the merits of his invention for driving piles and making foundations for piers, bridges, lighthouses, &c., upon an entirely new principle. The noble and learned lord read the opinion of engineers in favour of the efficiency of Dr. Potts's plan.—The Duke of WELLINGTON said (as we understood) that he had authorised experiments to be made with the view of testing the merits of the invention, but was not yet accurately acquainted with the result.—The Earl of AUCKLAND bore testimony to the great ingenuity of Dr. Potts's invention.

Original Correspondence.

GALVANISED IRON—IMPORTANT EXPERIMENTS.

SIR,—Under the impression that it may be interesting to some of your readers, I send you the results of an investigation which has been lately made, at the desire of the Lords of the Admiralty, by their "committee on metals," for the purpose of ascertaining whether the adoption of the process of galvanising wrought-iron, by chemical coating of metallic zinc, had any prejudicial effect in preventing such galvanised articles from being re-manufactured, in the event of such becoming obsolete, as in the case of working up old or scrap iron. With a view to put this question to the test of experiment in the most severe manner, a piece of *galvanised iron-wire rope* was welded up into a bar, and put to the most severe test. In the first place it was found, that although the iron-wire was quite covered with metallic zinc, which, although partially driven off in the process of welding, yet, so far from the presence of the metal, or its oxide, presenting any impediment to the welding of the iron (as in the case of lead), the iron-wire welded with remarkable ease; and the result was, a bar of remarkably tough, silvery-grained iron, which stood punching, splitting, twisting, and bending, in a manner such as to show, that the iron was not only excellent, but, to all appearance, actually improved in quality in a very important degree.

Encouraged by such a result, a still further, and even more severe, trial was made—viz.: by welding up a pile of clippings of galvanised iron-plates, or sheet-iron, covered with zinc, as in the former experiments. The presence of the zinc appeared to offer no impediment to the welding, and the result was, a bloom or bar of iron—the fracture of which presented a most remarkable and beautiful silvery grain—as good, if not superior, in aspect to the very finest samples of "Low Moor" or "Bowling" iron. Blooms of this iron were rolled out into rods, and tested in the cable-proving machine, and the result indicated from 5 to 10 per cent. higher strength than the best samples of wrought-iron—thus establishing the fact, that, so far from the presence of zinc being destructive to the strength and tenacity of wrought-iron, the contrary is the case.

I may mention, that bars of iron were heated to a welding heat, prepared by Scarf for sheathing, in the usual manner; and, on drawing them from the fire, for being welded, a handful of zinc filings was thrown on the welding hot surface, and the welding proceeded with; in this severe test no apparent impediment to the process resulted; the iron welded as well as if no zinc had been present. Judging from the appearance of the iron welded up from "zinc covered iron scraps," not only as respects its clear silvery aspect, but also the increased strength, which such exhibited under proof, it may not be unreasonable to infer, that some important improvement might be made in the manufacture of iron by the actual introduction of metallic zinc in some one or other of the stages of its manufacture—such as in the puddling-furnace. What the nature of the action of the zinc is, we are not yet able to say; all we as yet know is, that, so far from being prejudicial to the quality of the iron, it appears to have rather an improving effect; and that to such an extent as to cause us to desire that the subject may receive the attention of some of our intelligent iron manufacturers, so as to put the matter to the test of actual experiment in the puddling-furnace, or any other stage of the process, such as may appear to promise the best results. This, however, can only be viewed as a suggestion; but it appears to me to be a subject well worthy of attention—and for that reason alone I have taken the liberty to lay the matter before your readers; for, as being the result of the experiments conducted for the public good, the public are entitled to the result.

I may name a curious corroborative fact, that the strongest cast-iron made in Belgium, and selected for the casting of guns, is made from an iron ore, in which the *ore of zinc* forms a considerable portion. Whether the superiority of this iron is due to the presence of zinc, is a question; but the result of the before-named experiments tend to lead to the supposition, that such may be the case. JAMES NASMYTH.

Bridgewater Foundry, Patricroft, near Manchester, May 10.

THE IRON TRADE.

SIR,—The present embarrassed condition of more than one large iron-works in this district, must be a matter of deep and bitter disappointment, if not utter ruin, to several of the proprietors; and if the affairs of these companies are wound up, as proposed, the distress at present existing among the labouring classes will be increased tenfold. Iron manufacturing establishments, if properly and economically conducted, are capable of returning a very large revenue for the capital employed; yet how rarely do we see iron-works paying well. In 1847, at some large works in this neighbourhood, burdened with heavy royalties and deep workings, the cost of making foundry pigs was 2*l.* 15*s.* per ton; bars, 5*l.*; and rails, 5*l.* 12*s.* per ton—the selling price being 4*l.* 15*s.* for pigs, 8*l.* 10*s.* for bars, and 9*l.* per ton for rails: leaving a profit of 2*l.* on pigs, 3*l.* 10*s.* on bars, and 3*l.* 8*s.* on rails. From the published accounts of the iron-works in your last Journal, it appears, that on 8283 tons of pigs, there was a profit of 3224*l.* 6*s.* 1*d.*, or 7*s.* 8*d.* per ton; and on 9847 tons of bars and rails, the profits were 13,416*l.* 8*s.*, or 1*l.* 7*s.* 3*d.* per ton. This shows, that while at one establishment the profits would have been—

8283 tons of pigs, at 2*l.* per ton	£16,566 0
9847 tons of bars and rails, at 3*l.* 8*s.* per ton	33,579 16
Or a total profit of	£50,145 16

At other works, in no respects inferior to the above, the profits realised amounted to—

8283 tons of pigs, at 7*s.* 7*d.* per ton	£ 3224 6
9847 tons of bars and rails, at 1*l.* 7*s.* 3*d.* per ton	13,416 8
Total	£16,640 14

Thus showing a loss of 33,505*l.* 2*s.* per year, as compared with works managed on a different system. At the present time, foundry pigs can be made for 2*l.* 10*s.* per ton; bars, 4*l.* 6*s.*; and rails, 4*l.* 18*s.*; the selling prices (say) pigs, 4*l.*; bars, 6*l.* 10*s.*; and rails, 7*l.*: leaving a profit of 1*l.* 10*s.* on pigs, 2*l.* 4*s.* on bars, and 2*l.* 2*s.* on rails. Hence, works of the above capacity ought to pay handsome returns, even in the present depressed condition of the trade, for—

8283 tons of pigs, at 1*l.* 10*s.* per ton	£12,424 10
9847 tons of bars and rails, at 2*l.* 3*s.* per ton	22,648 2
Annual profits	£35,072 12

At some future time, I may attempt to show where the principal fault lies.

Merthyr Tydvil, May 8. IRON.

THE COPPER TRADE.

SIR,—I am much of the same opinion, with regard to the amount of copper ore imported into Hamburgh, as your correspondent, "Constant Reader;" and I feel confident in stating, that the two amounts named in your Journal, should read 60,000 zentner (cwts.) = 3000 tons—and 407,000 zentner = 20,500 tons, and not 60,000 and 407,000 tons. It must be borne in mind, that the Custom-house returns throughout Germany, respecting metals, &c., are all made out in cwts., *and not in tons*; and here the mistake must have originated. Again, I should consider that all the smelting furnaces in Germany put together are incapable of smelting even 60,000 tons of ore annually, leaving the 407,000 tons altogether out of consideration. This is an important question; and, with your correspondent, I should like to know where the ore came from, and where it was smelted. Perhaps some of your intelligent correspondents will favour us with a few particulars on the subject.—G. SHEPHERD, C.E.: *Fleet-street, May* 10.

[It was our intention to have inserted a note to the foot of a "Constant Reader's" letter in last week's Journal, but it was inadvertently overlooked. It was a typographical error, and should have been "cwts.," not "tons." The proportionate increase, however, is the same.]

COPPER ORE DUTIES.

SIR,—It is a striking fact, that while the heating power of coal has been made to produce a much greater effect in Cornwall (where the coal has to be imported) than in any other part of the empire, yet, in the same county, there are millions of tons of a combustible, in the mines of which, as respects the smelting of copper ore, not the slightest use is made; and even for the purpose of making sulphuric acid, very little of it is used. The substance in question—iron pyrites—can be raised there extremely pure in large quantities; and I have myself made, from a ton of it, 3000 lbs. of sulphuric acid, specific gravity 1·847. It is, doubtless, true, that the mere heating effect of iron pyrites is only about ⅓th that of coal; but the vapours of its combustion are of great value, while those from coal, burnt in reverberatory furnaces, are of no value. Instead, therefore, of volatilising into the atmosphere about 25 per cent. of sulphur, contained in the ordinary copper ore of Cornwall, it might be saved, at the same time, with the vapours of combustion from the iron pyrites, by roasting them together in a kiln. Now, the great advantage which the Cornish miner could possess over the colonial and foreign miner, is the fact, that he might raise mundic with his copper ore; as a great demand exists for sulphuric acid, for manufacturing and agricultural purposes in this country, he could, therefore, obtain (independently of his proximity to a first-rate market for the metal) a much higher price for his ores—supposing the home and colonial ores to contain the same quantity of copper—than the miner in a new and thinly-populated country, where neither the arts exist, nor the soil requires manure for a long time to come. Unless the sulphur of the copper ore is saved, the Cornish miner will now find it more difficult to compete with the reduction of the standard, consequent upon the abolition of the last remnant of protection.—W. BIRKMYRE: *May* 10.

COMMERCIAL IMPORTANCE OF THE METALLIC SULPHURETS.

SIR,—As you have always been a strenuous advocate of the copper mines, I send you these remarks, which you are at liberty to make use of as you may think fit.—T. H. LEIGHTON: *Swansea, May* 10.

THE MANUFACTURE OF ALKALI.—Since the repeal of the salt tax, the preparation of soda alkali has become an extensive and important branch of manufacture. In the form of crystallised soda, this is extensively used for washing, and other domestic purposes; and, in other states, it is used for manufacturing soap and glass, and for bleaching. To decompose salt, sulphuric acid is first formed, by burning sulphur and receiving the vapour—that is, sulphurous acid, with an addition of a portion of nitrous gas and water, or steam, in large leaden chambers, where the gases condense into liquid sulphuric acid, or oil of vitriol. Salt is then acted upon by a due proportion of this acid, in a reverberatory furnace; sulphate of soda forms, and muriatic acid is given off. This is extremely volatile, and difficult to condense; in consequence, some escapes into the atmosphere, causing considerable nuisance and damage around alkali works, notwithstanding innumerable ingenious contrivances for preventing it. Sulphate of soda is again decomposed in another furnace, by small coal and carbonate of lime, as chalk or limestone. The coal abstracts the oxygen from the sulphate of soda; sulphuret of sodium forms; the mass then fuses; when the two bases mutually exchange their combinations—lime becoming a sulphuret of calcium; the sodium, a subcarbonate of soda. A mass of rough alkali, or black ash, is thus obtained, composed of soluble subcarbonate of soda, and insoluble sulphuret of calcium, which are separated by lixiviation with water. By the present improper mode of effecting this, the sulphuret of calcium is allowed to pass, partially, into a soluble hydrosulphuret of lime, which renders the alkaline solution very impure, requiring to be purified before it is fit for use. The refuse, when turned out, becomes very offensive by heating, noxious gases being evolved. Some important improvements in this manufacture are about to be proposed, in connection with smelting copper—another branch of manufacture which has hitherto been attended with much nuisance and damage.

SMELTING COPPER ORES.—The most abundant ores of copper are sulphurets. These are first calcined, sulphurous acid is formed, and, in general, is allowed to escape into the atmosphere. Iron is always present in these ores, and it becomes partially oxidised by calcination. In the second operation, a general mixture of ores is melted, the protosulphuret of iron acting as a flux. By some uncertain process, oxygen and sulphur pass off; the iron absorbs the sulphur from the copper, which settles to the bottom; the other ingredients form slag, which is skimmed off with a rake. This is a very awkward operation—if the workman dips too deep, he draws off copper; if he does not go deep enough, he leaves slag. The copper thus obtained is much impregnated with sulphur and other impurities, and requires to pass through a long series of operations before it becomes sufficiently pure.

THEORY OF THE FORMATION OF AMMONIA.—While engaged in the alkali manufacture, I discovered that ammonia was formed by the action of vapour of water on the red-hot masses of rough alkali, the mixture of subcarbonate of soda, sulphuret of calcium, and the remains of the coal—carbon. When one of these masses, just removed from the mould into which the fused material used to be drawn out of the furnace was broken upon a moistened floor, ammonia was abundantly formed in the atmosphere above it. I made an attempt to apply this principle to produce ammonia in sufficient quantities to neutralise all the muriatic acid which we produced; but was unsuccessful. I was not, at that time, a perfect master of the theory upon which the formation of ammonia is based. I have since had great experience in the treatment of metallic sulphurets, the action of steam upon ignited carbon, and the effect of heat and combustion generally. I have determined by results, attained in such ways as to leave no room for doubt, that, when a sulphuret and carbon are acted upon by steam, at a temperature high enough to ignite the latter—say, above 1000° Fah.—the oxygen and carbon unite into carbonic oxide, the hydrogen and sulphur into sulphuretted hydrogen. These gases passing off at once into a cold atmosphere, the former absorbs oxygen, and forms carbonic acid—the latter absorbs nitrogen; a sulphuret of ammonia is first formed, which is again decomposed by the carbonic acid; carbonate of ammonia forms, and sulphur is deposited.

PROPOSED NEW APPLICATIONS OF AMMONIA.—While I had it in contemplation to produce muriates of ammonia in such large quantities, I set on foot inquiries to determine to what new uses this salt could be applied. I ascertained that, if sold at a cheap rate—that is, under 20*l.* per ton—it would supply a great desideratum for washing sheep and wool, taking the oil out of woollen clothes, cleansmg all greasy articles—as furs, skins, and hides—applied in this way. The muriate of ammonia to be mixed with a sufficient proportion of lime, and confined in a close vessel, having a pipe leading into water. A little heat applied will drive pure ammonia into the water—and thus a liquor of ammonia, of any requisite strength, could be readily produced for all of the above purposes. At the time I now refer to, guano had not been imported into this country. As the active agent in artificial manures, the consumption of muriate of ammonia may be said to be unlimited. My idea of using this salt as a fertiliser of land is, to allow some cheap, abundant green crop to remain upon the land at the end of autumn; to be then ploughed in with lime; and the first dry weather in spring to sprinkle muriate of ammonia over it. The land would then be charged with all the elements of the purest stable or farm-yard manure.

PROPOSED IMPROVEMENTS IN SMELTING COPPER.—The fact cannot be disputed, that pure metallic iron has a stronger attraction for the majority of the bodies with which copper is naturally associated in the different ores, than copper itself has; therefore, to produce copper by a single fusion, in a state of greater purity than it is now obtained, after seven or eight operations, it is only necessary to mix with the ore a sufficient proportion of granulated iron to take up the sulphur, or other matter, in combination with the copper present; and, further, by an improved arrangement of the furnace, a more complete separation of the copper and slag may be attained—while the latter is kept flowing off spontaneously. Pure iron, in a granulated form, may be prepared cheaply in various ways. The smelting of copper would thus be much simplified, and conducted without causing any nuisance or damage.

MANUFACTURE OF SULPHATE OF AMMONIA.—In this mode of manufacturing, a large quantity of sulphuret of iron would be produced in the slag, which could easily be granulated while hot. By proper treatment, this can be made to yield ammonia and sulphur. An improved mode of converting sulphur into sulphuric acid, without using nitre or leaden chambers, has been matured. Ammonia and sulphuric acid in vapour, drawn by a diffusion of steam into a condensing flue, or chamber, will yield a solution of sulphate of ammonia.

PROPOSED IMPROVEMENTS IN THE MANUFACTURE OF ALKALI.—It is proposed to decompose salt in an open furnace by solution of sulphate of ammonia, instead of sulphuric acid; sulphate of soda will be obtained as at present; muriate of ammonia will sublime—which, being easily condensed, may be obtained as a solution, and crystallised. The manufacture of alkali will thus be simplified also, and damage prevented. In lixiviating the rough alkali, an improved plan has been matured, by the adoption of which the sulphuret of calcium will be preserved throughout. This being dried quickly at a high heat, and kept dry, will be valuable as a manure, more particularly for certain crops. A further nuisance will thus be avoided. This improvement in lixiviation, with a small addition of carbonate of ammonia to the liquor in boiling down, and an improved mode of evaporation, will produce soda alkali in a state of greater purity than it has hitherto been, which will lead to an extension of consumption.

PROPOSED ARRANGEMENTS FOR WORKING OUT THE ABOVE IMPROVE-

MENTS.—The various subjects touched upon in the above remarks, would prove too multifarious and complicated for the consideration of parties, to carry them out altogether in a single establishment; such is not my object. By a proper division, the whole will be rendered simple and practicable. To smelt copper, the smelters must either prepare their own granulated iron, or have it done for them. The new furnace is extremely simple in its arrangements; the only novelty, therefore, requiring any nicety whatever will be the granulating of the slag. The treatment of granulated copper slag, to produce sulphate of ammonia, will form a new branch of manufacture, requiring new establishments, and fresh people to embark in them. I would recommend further, that the decomposition of salt should form a separate business, which could be advantageously conducted by parties engaged in salt-works. The salt of muriate of ammonia would be a new and separate branch of business. Instead of purchasing salt, the alkali manufacturers would purchase sulphate of soda. Their operations would be much simplified; while they could have a new article—sulphuret of calcium—the preparation and storing of which would occupy their spare space. In addition to these, I must observe, that a quantity of iron will remain in the residue after the preparation of sulphate of ammonia, capable of being reduced. The manufacture of iron, and its treatment to develope the several different properties requisite for the various uses to which it is to be applied, constitute altogether a subject of such magnitude and importance, that I shall defer its consideration for a future communication; in the meantime, my attention will be directed to the arrangement of abundance of data, which I have been accumulating for several years.

FAUVELLE'S SYSTEM OF BORING.

SIR,—I should be extremely obliged, if you, or any of your correspondents, could inform me what progress Fauvelle's new system of boring has made in this country. I have been anxiously looking and waiting for some marvellous result ever since your Number of the 26th September, 1846. It was also stated in your Journal, of the 5th December, 1846, that the Pennant Lead and Copper Mining Company had made arrangements to test its capabilities.

If you could return answers to the following questions, it would be deemed a favour by many of your readers and correspondents:—Whether, in the first place, the trial alluded to ever took place—and, if so, what has been the result? Or, if it is still going on, what are the expectations it holds out? And, lastly, the address of the parties who have it in hand.

Manchester, May 11. A CONSTANT READER.

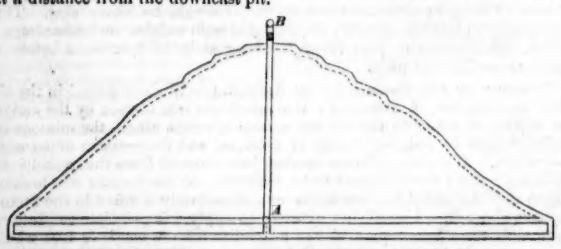
DIALLING.

SIR,—An eminent surveyor in Dean Forest has lately been trying to cut to the bottom of a pit, which has been bored through to a vein of coal, in which vein of coal a heading has been cut in search of the bore hole. He has hemmed the pit in with trial headings, but the bottom of it has eluded his utmost endeavours to discover. Is there any school where simple dialling is taught? Truly, the schoolmaster ought to be abroad.

Coleford, May 8. ROBERT MUSHET.

COAL WORKINGS—THE LONG-WALL SYSTEM.

SIR,—In answer to your correspondent's letter, which appeared on the 29th of April, I have much pleasure in looking over his sketch on the long-wall system of coal-getting, and do readily admit the plan to be good and economical; but, at the same time, I need scarcely add, that that which answers well in one coal mine might not be found to answer at all well in another. I know, also, that what is given in good nature, will not be taken amiss by any sensible man; therefore, I beg leave just to give the outlines of the before-named sketch, to show the advantages of placing the cupola at a distance from the downcast pit.



A—Downcast Pit. B—Upcast, or Cupola, Pit.

Now, I think it is the duty of every colliery proprietor and agent to make their workmen as comfortable as they reasonably can. Then, my first objection to the furnace being in the coal-drawing pit, is the descent and ascent of the collier into the mine; next the injury the banksmen are daily exposed to, by having to work and breathe in the smoke, intermixed with the gas ascending from the mine; next, the destruction of the pit-shaft and the ropes from the heat of the furnace. I know of instances, in this locality, where the pit-shaft has sustained great injury; and a loss in the ropes of 50 per cent., from the heat of the furnace; fourthly, the obstruction of the air during the time the carriages are drawn over the pit top for landing the corves; also, the resistance given to the ascension of the air, from the corves passing up and down the pit; and, lastly, and most seriously, should there be an explosion of fire-damp in the mine, the advantage of the cupola, or upcast pit, being at a distance from the downcast pit, would be found to be very great; for it is well known, that most of those who lose their lives are destroyed by choke-damp, in endeavouring to force their way to the drawing-pit bottom. Now, if the upcast pit was on the extreme rise of the mine, many lives would thereby be saved.

Gawber Colliery, near Barnsley, May 10. J. C. SUTCLIFFE.

VENTILATION OF COLLIERIES—WORKING PLANS.

SIR,—Having given some attention to the subject of working collieries, I am anxious to learn the opinion of old practitioners on the following mode of ventilation. Suppose I sink two pits close to each other, on the dip of an estate, in which I shall have a long line of workings, very extended, and the expense of sinking air-shafts, almost on the top of a mountain, very expensive—what means can I adopt to ventilate the property, the downcast pit being only a few feet lower than the upcast? The volume of air passing down the deep pit will not, I am afraid, be sufficient to keep up a healthy atmosphere for men to exist in, seeing that it has not only to supply *them* but the *horses* also, and the combustion of the candles used by the men—having in its course become much impregnated with noxious gases, and become light before it gets to the upcast pit; it then has to contend for its escape with the pressure of atmospheric air pressing down that pit; consequently, we always find it full of lazily ascending smoke, and injuring all within its vicinity. Now, it appears to me, that were I to construct a large flue by the side of the downcast pit, and carry it considerably higher than the mouth of the pit, having a great furnace below, burning to destroy the gases and produce a vacuum, that then I could divert the pure air of both pits into the workings, by confining it properly. I should then have established, what appears to me, a proper system of ventilation. Having now stated my own ideas, and being only a beginner, I shall feel greatly obliged if you will give them a place, as it may lead, if I am wrong, to more clear explanations.

It would confer a great boon on the agents of collieries, if schools were established in mining districts, with models and sections of the modes of working in different parts of England and Wales. At present it is mere hap-hazard in many cases, whether a mine is driving right or wrong; for we find many agents without either correct working plans or instruments, pretending to drive headings by mere imagination. What is the consequence of so much loss of life, and collieries being drowned out, by striking into faults, but a want of knowledge where they are—either from not having a correct working plan, or else from having an incorrect one; and often on so small a scale as to render it useless for nice operations? Many agents attempt to survey and make plans, who actually do not know the mode or value of reducing a measured line to the plane of the horizon, and fixing distant points with one angle instead of intersecting it with lines, or, at least, more than one angle. The many actions brought for trespass, and the heavy damages inflicted, arise, in most cases, from a want of knowledge of the value of correct surveys. In Lancashire, at least in the neighbourhood of St. Helens, where coal is leased at so much per foot, instead of weight, the lessee and lessor take care to have accurate surveys; hence, we find fewer actions of trespass there. It is highly important also, that great as the coal basin of Wales is in extent, the fuel ought to be carefully husbanded, as every yard of coal left in the ground carelessly is not only a private but a public loss.

I have no doubt, however, that there are many works, the owners of which will go the length of having proper and correct working plans, but there are also too many who do not—and, consequently, lose ten times their cost in a very short time.—A. B. C.: *Pontypool, May* 5.

REFORM OF THE PATENT LAWS.

SIR,—The letters of Mr. Campin and Mr. De la Hay, which appeared in last week's *Mining Journal*, on the Patent Laws, induce me once more to trespass upon your indulgence, by some further reflections thereon. Although I cannot be otherwise than deeply impressed with the great discouragements I have had to encounter, yet I argue this question upon the broad principle of justice to inventors in general. But if it be permitted me to refer to personal considerations at all, I would say, that it is all but certain that I shall not again solicit new patents, as I have long ago been sensible of the discouraging treatment which inventors receive, more especially when their inventions are of a comprehensive and difficult character; hence, I never have, nor will I pursue invention, further than to carry out the original oro; determined as I was that, in relation to it, no exertions, on my part, should be spared to surmount all the physical difficulties; which exertions, I can say truly, have been attended with success beyond my most sanguine anticipations. But with thus much achieved, greater obstacles than these physical difficulties presented themselves, in the apathy, the prejudice, the envy, and the opposing interest of the very beings I had supposed my exertions were to benefit. But to the question of Patent Laws—and here Mr. De la Hay seems to me to have put the question, in reference to the standard according to which the law should afford protection to inventors, in its proper light, in that part of his letter in which he says, "genius cannot be the standard for measuring the *duration* of protection afforded to individuals."

I have, in the above quotation, substituted the word *duration* for *amount*, because I think, if the Patent Laws were assimilated to the law of copyright, both as to original title and the expeditious, simple, cheap, and efficacious means of defending such right, which the law of copyright contains, that then inventions would reward their proprietors in a manner corresponding to their deserts, as the really comprehensive and valuable inventions would then, by such ample time, convince mankind of their merits; but under the law, as it stands at present, its practical effects are just the opposite of this—so much so, that where the inventor's aim is simply to make money, he should seek such inventions as, by comparison, can be conceived in an hour, and perfected in a day, which, as they cost little effort in their origination, so they are easily introduced into the market. But further, the effects of the short duration of patent right, in connection with original and difficult inventions—which are those against which the interested few wield most effectually the prejudices of the many, to the suppressing of such inventions, or the retarding of their introduction—I say the effect of the present law is to encourage such interested and envious persons, by the thought, that they at least have the prospective satisfaction of *denuding* such inventors of their just recompense—whereas, if the term was extended, as above intimated, the prospects of such would be comparatively hopeless, as even these men must feel that truth is irresistible, and must ultimately prevail. Mr. Campin says, that an extension of patent right can be obtained on application to the Privy Council; but he does not inform us as to the great expense which attends such an application. But, after all, the real question, when viewed in relation to natural justice, which is antecedent to all artificial law, is—whether inventors have, or have not, a right to the products of their own labour? Here, methinks, the arguments which would set aside such claim would go far to invalidate all personal right to property; yet it must be admitted, and I admit it most freely, that society has the right to guard itself against all unfair monopoly; which, with all deference to Mr. Campin, I think it may do without withholding from inventors that which it has conferred upon authors; and that, for the future, such cases as those to which Mr. Campin alludes, where he says, in his last letter, "the facts are against him," could be provided for in a manner consistent with justice to inventors, and advantage to the public.

In all my communications upon this subject, I have, or at least intended to have, conveyed to Mr. Campin my sincere desire to do what I can to further the object he has undertaken. But in justification of the course I have pursued, I wish to remind him, that I am an advocate for individuality of thought, and of free but fair discussion—believing that such is most conducive to truth, and best adapted to advance and uphold the cause of justice. Nay, I maintain further, that such a course is perfectly consistent with the most cordial co-operation and unity of purpose, by which practical and discerning men endeavour to realise the greatest good that seems possible. I need say no more, but assure Mr. Campin that, however we may differ on abstract points, yet for practical purposes, he may rely upon my efforts being used to further the cause he has undertaken.

Birmingham, May 10. T. CRADDOCK.

REFORM OF THE PATENT LAWS.

SIR,—The British Inventors' Protecting Company, having lately been much interested in reading the communications from Mr. Campin, and other correspondents, through the medium of your valuable Journal, regarding the necessity of endeavouring to obtain an alteration in the Patent Laws, which are at present so opposive and oppressive to the wealthless class, and thereby obstructive to civilisation, I am, therefore, requested to inform those of your readers who are interested in these movements, that it is the intention of the British Inventors' Protecting Company to petition the Legislature for an alteration in the Patent Laws, for they have practically felt their oppression in their first efforts to encourage and protect genius. A public meeting will, probably, be the means adopted to make known their sentiments, of which due notice will be given. In the meantime, I beg leave to submit an address and prospectus, for the formation of an association for the encouragement of genius, the protection of capital, and organisation of labour, which, I think, requires the serious consideration and support of all classes.—A. CAMPBELL, Secretary: *May* 10.

[We have looked through the papers accompanying the letter of our correspondent, but have not space to enter upon them. There can be no doubt but that the object in view is praiseworthy, and, if carried out, would be attended with benefit and advantage to the industrial artizan, and to the man of genius, whose position in society may preclude that advance which his merits warrant; but we cannot help expressing our opinion, that the details are somewhat prematurely brought forward, and require a careful revision. If in our power to promote the objects of the society, we shall most cheerfully lend our aid.]

NAIL MAKING.—This branch of trade is likely soon to receive a strong impetus by the operations of the British and Foreign Patent Nail Company, who are about to commence their works. We have had much satisfaction in examining the nails and also the estimates, which are to be seen at the company's offices, in Surrey-street, and there can be no question but that these nails, which have been manufactured by the machinery, are of a first-class description, possessing all the qualities of the finest hammered nails, though produced at an expense which will enable them to be sold at a lower price than is paid for the most common cut-nails. It seems that the whole nail—head, body, and point—is made at the same time, and simply by one operation of the machine. The estimates, which are apparently prepared with great care, and founded upon the present prices of iron and nails, show a return of more than 40 per cent.

IMPROVED MACHINERY FOR BLOOMING IRON.—Mr. A. V. Newton, of Chancery-lane, has taken out a patent, in consequence of a communication from abroad, for machinery for blooming iron, and for more effectually compressing and shingling. By this machine, the iron, passing between cheeks held in certain positions by springs, is kept square and in regular and proper shape; the machine is regularly fed, and the bloom is discharged when sufficiently compressed and shingled. It consists of a powerful iron frame, securely fastened to the bed-plate. In these frames are sliding blocks, forming bearings for the shaft, on whose axis is mounted, and properly secured a cam shaped compresser. The periphery of this compresser is eccentric to its centre of motion, for the purpose of squeezing and compressing the ball of iron between it and the rollers. The periphery of the compresser is formed with teeth, or indentations, thereon, for more effectually entering into the ball of iron, and squeezing out the impurities. The eccentricity of the motion of the compresser gives an increase to the force as it proceeds from the first point to $\frac{3}{8}$ths the circumference, and again decreases it as it arrives at $\frac{3}{4}$ths the circumference, which is its shape; and there is such motion given to the rollers and cheeks as effectually brings every portion of the bloom under the action of the compresser. The distance between the rollers can be adjusted by regulating screws, in the top of the frame. There is a frame attached to the machine, called the feeder, on which the ball of iron is placed in such position that, on the compresser performing a certain portion of its $\frac{3}{4}$ths revolution, it draws it in between itself and the rollers, and the squeezing process immediately begins. The $\frac{3}{4}$ths revolution each way is regulated by the alternate action of levers.

IMPROVEMENTS IN LOCOMOTIVE ENGINES & CARRIAGES.

A patent has just been secured by Mr. A. V. Newton, of Chancery-lane, through a communication from abroad, for several improvements in the mode of constructing engines and carriages and the apparatus attached to them. These improvements consist—*first*, in obtaining the requisite adhesion, or bite, on the rails for the engine and its carriages, to enable the train to ascend and descend inclined planes with safety and certainty, and thus avoid the expenses of heavy cuttings or circuitous routes. This is proposed to be effected by employing the gravitating force of the train, in such manner that the adhesion shall increase in proportion to the angle of inclination and weight of the train. It is done by providing the locomotive with a pair of gripping wheels, which embrace a central rail, laid down on that portion of a line where high gradients are to be overcome; these gripping wheels, in ascending or descending, are made driving-wheels, have their bearings in levers, connected together by two opposing toggle joints, which are operated upon by the connecting link of the train—so that, in ascending, the gravity of the train shall operate on one of the toggles, and thereby cause the wheels to grip the central rail with a power proportioned to the gravitating force to be overcome; and, in descending, the connecting link operates on the other toggle, producing a like effect. To convert the gripping-wheels into driving-wheels, they are operated upon by an auxiliary pair of steam cylinders, of such capacity as will, in conjunction with the ordinary cylinders, effectually work off the steam generated in the boiler during the slow motion of the locomotive and train up the inclined plane.—2. In certain means of employing the full force of the steam generated in the boiler, notwithstanding the varying motion of the train while passing over irregularities in the line. It must have been frequently remarked by railway engineers that, when locomotives are running on an uneven or rough road, the exhaust was as irregular as the rough road, and the engine, of course, not working its full power; whereas, at such times it ought to do so, having more resistance to overcome than when on a smooth road. To prevent this irregular working, the boxes, which surround the valve eccentrics, are supported by, and made to slide into, a frame, or yoke, suspended from the engine-frame by levers, in such manner that it always maintains the same relative position to the framing, leaving the driving-shaft, with its eccentrics, free to move up and down—while the eccentric, in its revolutions, gives a uniform vibratory motion to the yoke, without regard to the position of the shaft.—3. To prevent the flues of the boiler from being partially uncovered, or raised, above the water-line, and exposed to the destructive heat of the fire, while the engine is ascending or descending heavy gradients. This object is accomplished by the application of a series of transverse vertical partitions to the cylindrical part of the boiler, which partitions are rivetted, or otherwise attached, to the outer casing of the boiler, and are of such height as shall reach to the lowest water-level. The flues are made of copper or iron, drawn to a uniform size; and, being passed through well-bored holes in the partition-plates, will render them sufficiently tight for all practical purposes. When the engine is ascending, the water is to be supplied to the boiler at the front end; and it will run from one division to another, keeping the flues always covered. In descending, it must be supplied at the opposite end.—4. A self-acting break, intended to prevent accidents, in the event of the breaking or separating of the links by which the respective parts of the train are held together. This break consists of a pair of jointed grippers—one of which is to be attached to each carriage, and held up clear of the central rail by a chain, which is connected by a bolt, with an additional link, or attachment, and which, when the main link which connects the carriages is separated or broken, liberates the grippers, and allows them to fall, so as to embrace the rail, upon which the gripping-wheels of the locomotive operate.

STEAM FERRY ACROSS THE HUMBER.

At the Society of Arts, on Wednesday evening last, Mr. Sidney read a paper "On the Construction of Piers for Ferry-Boats; and on one proposed to be constructed for the purpose of connecting the Manchester, Sheffield, and Lincolnshire Railway with the Port of Hull." The paper commenced with the history of ferry-boats from the earliest ages, showing that they must have been known previous to the formation of the heathen mythology, as there, Charon is introduced as the ferryman of Hell, to carry souls across the Styx. The earliest ferries in this country were noticed, and their gradual improvement in safety, comfort, and time, up to the present period. Among the most interesting, were the gigantic steam-raft, from Gosport to Portsmouth; a floating-raft, capable of carrying 10 carriages, worked by a horse and rope, over the Dee, near Chester, to cross into Flintshire, which any single passenger may take advantage of, at any hour of the day, without waiting for others; another good one over the Tamar, in Devonshire; the enormous floating-pier and steam-raft at Liverpool, the cross-barge, or pier, which, resting on immense water-tight iron caissoons, was afterwards described by Mr. Scott Russell as 600 ft. long and 40 ft. wide. Twenty years since, only one flat-bottomed boat crossed from Liverpool to the village of Birkenhead; but, about 1830, steam ferry-boats were established, and Birkenhead alone now contains 20,000 inhabitants, with extensive docks, and numerous other large establishments; while, with Woodside, and three other villages, the population cannot be less than 50,000; which wonderful increase may be attributed to steam ferry-boats. With respect to the ferry from New Holland to Hull (a large and beautiful model of the pier and erections for which were on the table), it consists of a range of warehouses, sheds, waiting-rooms, and offices, in connection with the railway; from these the passenger proceeds on to a fixed pier, between 200 and 300 ft. long, and 40 ft. wide, built on wood-framed arches, on piles, and terminating in a solid erection of masonry. From this, an iron tunnel, on the principle of the Conway Tube, 200 ft. long, and 15 ft. square, with gable roof well lighted, is extended to a sufficient distance to secure 4 feet water at the lowest tides. One end of this tube is hinged, or securely hung, to the end of the fixed pier; the other rests on a timber cross-platform, or landing-place, 200 ft. long, and 40 ft. wide, floating on hollow iron caissoons, and guided, in its rise and fall with the tide, by a strong framing of piles, placed at each end. This tube weighs about 259 tons, and the landing-place may be approached either by vehicles drawn by horses, or by foot-passengers.

An interesting discussion ensued, in which the vast improvements in every description of travelling, which had taken place during the present century, were dwelt on, and gave much satisfaction to a numerous audience.

PRESERVATION OF WOOD.

Notwithstanding all the experiments, patents, lawsuits, and expenses, which have marked the past 10 years, in the attempt to introduce a substance for the preservation of timber, which should, at the same time, be perfectly antiseptic and insoluble, it appears, from a paper read before the Paris Academy of Sciences, that all the patents which have been taken out in this country, employing corrosive sublimate, arsenius acid, chlorides of calcium, sodium, and zinc, sulphates of copper, iron, &c., although they may preserve the fibre of the wood for a time, these acids are, in the course of indefinite periods, either dissolved, or the sharp crystals which are, in some cases, inevitably formed, tear asunder the woody fibre, and render the wood more permeable to moisture. MM. Hutin and Boutigny have taken out a patent in France for a plan of preserving timber, which certainly appears to have considerable merit. The principle they adopt is, not to use any of the metallic salts, but to assimilate the antiseptic substance employed with the vegetable fibre itself. The process is most simple—all that is required being to immerse the ends of each piece to be preserved in any of the hydro-carbons—such as the oil of schist, or any other sufficiently light and volatile. Let the ends of each piece of wood thus heated be set on fire, and let them burn until all the applied hydro-carbon is burned out—then immediately dip them into a hot mixture of pitch, tar, and shellac.

This process will inevitably preserve the ends from destruction; and, by the usual appliances of paint, tar, &c., according to circumstances, it is expected any timber-work will be preserved to an indefinite period of time.—M. GEMINI also read a paper, communicating his ideas to the Academy, on the "Preservation of Timber," and which singularly accorded with those above-mentioned: his testimony went to show, that metallic salts, introduced by great force, disintegrate the ligneous fibres, between which they have been introduced, and thus render the material more susceptible to the effects of external causes: he recommends tar, creosote, naphtha, or any of the highly-bituminised articles, which are to be easily and economically obtained, and which generally, if they are not found to be eternally preservative, have never been known to fail in being greatly so.

WINNING AND WORKING COLLIERIES.

BY MATTHIAS DUNN, MINING ENGINEER.

PECULIARITIES IN COAL-FIELDS.—All coal fields are, more or less, affected by various irregularities, which have occurred during the time, or after their formation, and which are ascertained during the course of mining. The interruption which they cause, have necessarily led to the exercise of ingenuity in the application of manual power, or of machinery. I, therefore, propose, first, to describe these peculiarities, and then to explain by what sort of process the communication from the shaft may be restored and kept up with those portions of the colliery which may so be severed. *Hitches* are minor dislocations, the result of which is, that one portion of the coal bed is found to be elevated a few feet above the plane of the other. They are only termed hitches when the throw is less than the thickness of the seam; and the interruption is overcome by cutting away the roof, or floor, into an easy inclined plane. *Baulks* are constituted by excrescences of the roof or floor, by which the seam is partially thinned. *Nips* signify that the roof and floor approach each other, and so diminish the natural thickness of the coal. Sometimes a 6 ft. seam will be thus nipped into one of a few inches, and continue so to a considerable distance.—The *Slip Dyke* is but the hitch in magnitude. It is the vein, or fissure, which has been occasioned by the violent separation of the strata, whereby one side is depressed and the other elevated. For instance, the main dyke which traverses the coal district north-west of Newcastle-upon-Tyne, is known to be coincident with the depression of the coal upon the north-side, to the extent of far exceeding 100 fms. The character of these dykes differs considerably—but where the coal strata are flat, these intersections are pretty perpendicular, always sloping towards the dip side, and *vice versâ*; but in the deep mines these faults are generally as sloping as the coal, although in a different direction, so that upon mining up to a fault, the viewer is guided by these appearances, as to whether the coal be thrown up or down, but beyond that he cannot judge till he has mined through. The vize, or vein, of the fault is generally filled with ground strata, water, fire-clay, or calcareous spar, and is sometimes the receptacle of fire-damp; and it is in these fissures, that galena and other minerals are found. *Whin Dykes* are basaltic formations, intersecting coal districts for several miles; such, for instance, as the Cockfield dyke, in the county of Durham, or the Whorlton dyke, in the county of Northumberland. These dykes are formed of solid basalt, 10 to 20 yards in thickness, of unascertained depth; and, from the perpendicular formation of their sides, leave no room to doubt that the strata had, at one period, been entirely severed, and the space filled up with burning lava. As a proof, the seams of coal through which these have passed are cindered on each side to a considerable distance; and as they have been frequently worked through, their construction and character is exactly ascertained.

The following is an extract of a notice of the Cockfield green-stone dyke, which was communicated to the Newcastle Natural History Society, by the late Mr. Witham, of Lartington:—

"The dyke is traceable for a distance of 70 miles, running in a direction south-east. Under the common, several seams of coal have been worked. Within 50 yards of the dyke the coal begins to change. It first loses the calcareous spar which occurs in the joints and faces, and also loses its quality for burning. As it comes nearer, it assumes the appearance of half-burnt cinder; and, approaching still nearer to the volcanic mass, it grows less and less in thickness, becoming a pretty hard cinder, and only 2½ ft. thick; eight yards further, it is converted into real cinder, and more immediately in contact with the basalt. It becomes, by degree, a black substance, called swad, resembling soot caked together—the seam of coal being reduced to 9 in. in depth. There is a large portion of pyrites lodged in the roof of that part of the seam which has been reduced to cinder. On each side of the dyke, between it and the regular strata, there is a thin gut or core of clay, about 6 in. thick, which turns the rainwater on the rise side, and forces it to the surface, forming numerous springs as it traverses the country. The coal deteriorated by the greenstone dyke is as follows:—25 yards of bad short coal, half reduced to cinder; 16 yards of cinder; and 10 yards of sooty substance=51 yards. Had a similar effect taken place on the rise side, of which there is little doubt, it will make altogether upwards of 100 yards of coal rendered unfit for colliery purposes. The dyke itself at this point is 18 yards in thickness; water-worn stones have occasionally been found embedded in the solid coal in the main seam.

Mr. F. Forster, in 1830, published an investigation of the nature of the several specimens of coal, &c., from this dyke, of which the following are extracts:—The basalt is light grey, fine-grained, and compact, interspersed with crystals of felspar—specific gravity, 2·672; loses 8 per cent. in a strong air furnace heat, and becomes fused into a brown glass. The coke, or carbonised coal, mixed up with the basalt is extremely hard, fracture uneven, grey, mixed with irregular streaks of carbonate of lime and sulphuret of iron—specific gravity, 1·957—that of the coal which it represents being 1·27. The coke, when reduced to powder, and calcined in a strong red heat, leaves 23 per cent. of heavy incombustible powder of a reddish colour. It is remarkable that this coal, although reposing immediately upon the 10-ft. beds of basalt, should retain the above properties. The 10-ft. stratum of carbonised coal, specific gravity 1·660, when calcined in a strong red heat, there remained 35½ per cent. of a dirty white powder, chiefly silicious, containing a minute proportion of iron.

The course of the Whorlton and Coaly Hill dyke is traceable from thence to the eastward through the collieries of Kenton, Spital Tongues, Shield Field, Byker, St. Anthony's, Walker, South Hebburn, and thence nearly to the sea, being worked at the surface for roadstones in various places. In these collieries it has been repeatedly passed through in the coal; and the following section was ascertained in one of the passages of St. Anthony's, where the high main seam lay at the depth of 60 fms. from the surface:—From south to north—Cinder coal, 114 ft.; sandstone, 6 in.; whin, 9 ft. 8 in.: blue stone, mixed with sandstone, 6 ft. 8 in.; sandstone, 3 ft. 8 in.; blue stone, mixed with sandstone, 4 ft. 9 in.; whin, 7 ft. 9 in.; cinder coal, 114 ft.=261 ft.*

Water.—Generally speaking, coal beds, when at any material depth from the surface, do not give out water to any amount. The construction of some coal seams is close and water-tight, and will not pass water, however great the pressure; whereas, others are so laminated, such as splint coals and parrot coals, that they will pass water for hundreds of yards; therefore, these coals are always wet in the working, whereas the close coals in the county of Durham, and elsewhere, do not produce any water at even the greatest depths. I have elsewhere observed upon the remarkable fact of salt water being found at certain depths considerably more salt than the sea water, although no trace of salt rock has ever been discovered. The salt spring at Birtley, county of Durham, which has continued with little or no change for a great number of years, comes from the fissure of a fault, bears a high temperature, and contains nearly three times as much salt as sea-water. *Pyrites* is found embedded in the coal, and which is separated in the working, and sold for the making of *copperas*.—*Ironstone*: Ironstone is found embedded in the shales, accompanying the coal, and in the bands which separate one portion of the coal from the other. In ordinary, it does not exceed a few inches in thickness, and the stratification is in general very irregular. The specific gravity of the ordinary clay ironstone is 3·54—yielding 25 to 30 per cent. of iron. The strata below the thick coal of Staffordshire, Worcestershire, and Shropshire, contain several seams of valuable ironstone, averaging from 400 to 600 cwts. per square yard, and yielding from 40 to 60 per cent. of iron. The *gubbin* stone lies in irregular masses of from 15 to 25 in. in thickness, and is of most productive quality. The following seams are in course of working in different parts of the district—viz:

Between the Great Seam and the Heaton coal	Gubbin stone and Lamb stone.
Below the Heaton coal	Brown stone. New mine stone.
Between the Fire-clay coal and the Green rock	White stone.
Below the Bottom coal	Gubbin stone. Blue Flatts. Silver thread and Diamond stone.

These four latter seams, being embedded amidst the lowest of the ascertained coal strata, have not been generally worked, but are found to be signally valuable in the neighbourhood of Wallsall.

* The coal was very little thrown at this passage, and the cindered coal so charred as to be rendered incombustible under ordinary heat.

RAILWAY MATERIALS FROM FRANCE.—A vessel, arrived in the river from Boulogne, has brought an entire cargo of railway materials, consisting of 190 waggons in pieces, 49 crossings, and 380 wheels and axletrees—being British manufactures returned.

GALVANIZED IRON COMPANY.—In the House of Commons, on Tuesday evening, the new bill of the Patent Galvanized Iron Company (incorporation of company, with powers to hold lands, to raise money by loan, and to purchase letters patent) was read a third time and passed.

SLAVE LABOUR, AS EMPLOYED BY BRITISH MINING COMPANIES ABROAD.

The very great importance of the question which arises on this subject, as greatly affecting the interests of English mining companies in the Brazils, or any other portion of the globe, away from the emancipating soil of England, is evinced by the numerous communications which have lately appeared in our columns. The great amount of British capital employed in the districts of the Brazils alone, in mining adventures, the numerous population employed on the several properties, both British and negro, and the enormous interests here, which would be affected by any sudden and uncalled-for change, render it a matter of imperative necessity that a calm and deliberate consideration be given to the subject in all its bearings, without stumbling on any hasty and, probably, most injurious decision. It is well known, that the subject has, for many years, engaged the deepest consideration of the Legislature, that the humane and immortal Wilberforce spent a life-time in endeavouring to mitigate the evils and horrors of the trade, and ameliorate the condition of its miserable victims; and whose philanthropic exertions were crowned with complete success, as far as British traffic was concerned, by the passing of an Act prohibiting British subjects from trading in slaves in foreign settlements, in 1833, on the 29th of July, in which year, its indefatigable promoter departed this life. In making these remarks, it is not our intention to give an opinion on the question of *moral right* in the possession of slaves; but we must bear testimony to the fact, that from every source from which we have received information for many years, it has satisfied us that the state of the slave population appertaining to our British mines in the Brazils, is totally at variance with what we have understood that to be, under the old Brazilian and West Indian planters; and that, instead of excessive toil, insufficient food, and the horrors of the lash, applied for every trifling offence, they are well fed, well clothed, compelled to work but moderate and reasonable hours, paid for overtime, and their health and moral character and improvement most carefully provided for.

The period when complete emancipation should commence, under this Act, was in 1840; and, in October, 1841, Lord Brougham brought forward the subject in the House of Lords, in which discussion, in a speech of some hours' duration, he entered very fully into the laws in active force, in which the following extract is exactly applicable to the subject matter under notice:—

"The act of dealing on which the question arises, is this:—we are not speaking of holding slave property—that, of itself, is nothing, for the emancipation Act of 1833 did not prohibit British subjects from holding slaves in foreign settlements, in the same way that the Abolition Act had prohibited British subjects from slave-trading in foreign settlements: the measures were, in this respect, differently framed; consequently, after the Act of 1833, and even after the final period of emancipation, 1840, it was lawful for a British subject to have property in slaves in a foreign settlement. But the question is this—Has it been lawful since the Abolition Law (meaning, of course, the law abolishing the slave-trade)—has it been lawful for a British subject to purchase slaves, voluntarily to make himself the holder of slaves, to buy slaves, or to sell slaves, in a foreign country?"

After showing the great evils and horrors of the system, he presented a petition from the British and Foreign Anti-Slavery Society (which want of space prevents us inserting), the purport being the abolition of slave labour in foreign mines, worked by British capital. Lord Brougham having thus introduced the subject to the Legislature, "A Friend to the Negro" published a letter in the *Morning Herald* of 1842, to prevent, or correct, any misconception which might arise from his Lordship's observations. We cannot give the document at length; but the following are extracts. He examines—1. The state of the negroes in the employ of the British mining companies in Brazil, as regards their own happiness, and means of moral improvement.—2. The influence which their present position and example exercises upon the surrounding community.—3. The consequences of their emancipation upon their happiness and moral character.—4. The effect of their emancipation as a means of hastening or retarding the abolition of slavery in the province of Minas Geräes—and says—

"In the consideration of the first point, it is essential to bear in mind, that no just comparison can be made between the blacks of the British West India islands and the negroes in the employ of the British associations. The first are, for the most part, born upon the several estates, accustomed to British habits, wants, and feelings, and, consequently, entitled to, and able to exercise, the rights of man, without detriment to themselves, or danger to the community in which they live. The latter, on the contrary, are natives of Africa, barely weaned from the savage propensities and habits of their childhood, and quite incapable of governing, maintaining, or protecting themselves. Led by the example, and instructed by the skill, of the English miner, they acquire proficiency in his art, and cheerfully accompany him in his hours of labour. The task of the white man and the black begins and ends together; and if both, or either of them, choose to extend their term of toil (which is only eight hours per day for six days in the week), they may, but are not forced, to do so; and both are paid for the extra time that they are employed. Thus thrown together, in the prosecution of a common object, a community of feeling and of interest arises between the white man and the black, and the latter, unconsciously imitating his fellow-labourer, is sustained by his example in habits of regularity and industry. His individual happiness is improved by the acquisition of new habits, new thoughts, and new feelings, forming an antagonist principle with the savage propensities of his uncultivated nature. His moral improvement is advanced by finding himself a member of a well-ordered establishment—by feeling himself secure in his cottage, with the domestic comforts and support of his wife and family; and his mind and heart are thus prepared for the reception of those higher truths which it is the duty and privilege of the British associations to inculcate."

On the second point, he observes—

"It is well known to all who witnessed the settlement of the first British establishment at Gongo Soco, that a great sensation was created thereby, extending throughout the whole Comarca of Sabará, even to the diamond district. This sensation was not confined to the Brazilian miner and planter; but rumours of the new establishment spread among the negro population, who fled in numbers from their Brazilian masters, and sought a refuge among their happier countrymen at Gongo Soco. Indeed, the condition of Gongo negro, his food, his clothing, his cottage, his moral training, formed a novel spectacle in the province of Minas Geräes, exciting the wonder, indignation, and contempt of the Brazilian slaveowner. But the matter could not rest here—for the force of example and the force of opinion, acting slowly, though surely, have obliged the Brazilians to ameliorate the condition of their negroes, and to place them more upon a par with those at the different English establishments. But the same causes which have acted upon the masters have not been less influential upon the negroes; for these latter, finding themselves the objects of greater care and solicitude—proud of their bettered condition—have unconsciously acquired feelings of self-respect, and habits of industry and self-government, which have naturally raised them in the scale of humanity, increased their own happiness, and identified their well-being with that of the surrounding community."

On the third, the writer says—

"Unsupported by the moral control consequent on being a member of a large and well-regulated English establishment, the negro would speedily relapse into the vices almost necessarily connected with his early training; the acquired habit would quickly succomb before the natural propensity; industry would give place to idleness, temperance to inebriety; and the negro, instead of being, as now, a blessing to his family, to his employer, and to the surrounding community, would sink into a state of moral degradation, a misery to himself, and a curse to his neighbours—a living monument of the folly, not to say the wickedness of those who, with the ruthless hand of a zeal without knowledge—who with that self-complacent spirit of experimental philanthropy which involves no personal risk, and requires no personal sacrifice, would invade the quiet retreat of the African negro, tear him from his protectors and friends, and place him unguarded and unsupported in situations of responsibility and temptation, totally inadequate to his moral and mental capabilities. The negroes freed by the English mining establishments (and there have been many) have always fallen back upon their natural propensities—idleness and inebriety."

After noticing the vast difference in the political positions of the British Government, as to the policy of abolishing slavery, he observes—

"The negroes emancipated by British companies, unshielded by their legal protection, would speedily find themselves deprived of their present liberty and happiness, and placed on the muster-roll of the Brazilian army—torn from their wives and children, would be marched to some remote part of the empire. The wives and children, alike unprotected by the legal authority, and by the vigilance of their natural guardians, would become the easy prey of the kidnapper, and soon find themselves for sale in a distant part of the province; and father, mother, and children, would live to curse the infatuation of foreigners, who, in the blind presumption of ignorance, stept in the foreground to force on measures involving the happiness—nay, almost the life or death—of others, without the smallest knowledge on the subject of their legislation.

"In England the philanthropist, undeceived by tales of foreign woes, may verify the reality of the affliction he seeks to alleviate; may open his hand and his heart to redress the grievances and supply the wants of his own countrymen; may, without the fear of inflicting evil by a noisy and ignorant zeal, free from the suspicion of a pitiable ostentation, follow with calmness, and in retirement, the warm impulses of his benevolent heart, and— 'Do good by stealth, and blush to find it fame.'"

To all who feel interested in this highly important subject, it will be gratifying to learn, that the Portuguese Government have issued a decree for the TOTAL ABOLITION of slavery in all the possessions of that State. As the law *now* stands, slave trading is criminal, but has ever been tolerated and winked at. The decree, therefore, names a commission, for the purpose of ascertaining the best means to be adopted for its immediate and entire abolition, without injury to private property, or the national revenue.

THE COST-BOOK SYSTEM.—We gave the particulars of the cause, Curling *v.* Flight, up to the rising of the Court, on Friday, in our last Journal—the arguments were resumed and concluded on Saturday. The LORD CHANCELLOR said, it appeared that all parties had given up the freehold title, and, therefore, the only consideration for the Court was, whether the title shown by the vendor was such a one as a purchaser ought to be decreed to accept. Some of the certificates produced by the plaintiff, as evidence of the custom of transfer, spoke of its being done by deed, and yet no such deed had been shown as part of the title of the vendor. This certainly must be considered as a defect in the title, and a purchaser could hardly, in its absence, be decreed to complete his purchase. Agreeing, therefore, with the Vice-Chancellor, in thinking that the title shown by the vendor was not a good one, still he (the Lord Chancellor) differed from that judge in the practice which ought to have been followed in such a case. As the Master had reported in favour of a good title, which the Court had overruled, the case ought, as a matter of course, to have been referred back to the Master to give the plaintiff an opportunity of furnishing a better title, instead of dismissing the bill. The order that he should make, would be to send the case again to the Master, and in the meantime the costs would be reserved. The order dismissing the bill was, by consent of all parties, considered unmade.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY ....General Fire and Life Assurance Company—offices, at Twelve.
MONDAY .....Colombian Mining Association—offices, at half-past Two.
TUESDAY .....Medical, Legal, and General Life Assurance Company—offices, Twelve.
Equitable Gas-Light Company—offices, at One.
WEDNESDAY ..Waterford and Kilkenny Railway—London Tavern, at Twelve for One.
THURSDAY ....Provincial Bank of Ireland—offices, at Twelve.
FRIDAY ..... Patent Tidal Wheel Company—offices, at Twelve.
[*The meetings of Mining Companies are inserted among the Mining Intelligence.*]

CLARIDGE'S ASPHALTE COMPANY.—The annual meeting of this company was held at the offices, Stangate, Westminster, on Thursday, the 4th inst., when the report of the directors was read and adopted. A dividend of 7½ per cent. was declared, and the thanks of the proprietors to the directors and secretary, for their great and successful exertions on behalf of the company, was unanimously voted.

IONIAN BANK.—The annual general meeting of proprietors was held on Thursday,—OLIVER FARRER, Esq., in the chair,—when a report was presented by the directors of their operations for the past year. It appeared that the progress of the bank had been favourable; the business of the establishment had gradually improved, and, notwithstanding the general depression of commercial affairs throughout the whole of Europe, during the twelve months, apart from the great political excitement, the bank had proceeded with satisfactory results. The net profits for 1847 amounted to 11,138*l.*, after deducting all expenses and bad debts, and discharging two half-yearly dividends, at the rate of 6 per cent. per annum, upon the paid-up capital of the company. The sum of 2517*l.* had been added to the rest, or reserved fund. S. W. Cattley and Thomas Kettlewell, Esqrs., were re-elected directors of the bank.

NATIONAL PROVINCIAL BANK OF ENGLAND.—The fifteenth annual meeting of proprietors was held on Thursday, at the offices, Bishopsgate-street,—F. LAURIE, Esq., in the chair.—The report stated, that the amount of undivided profit for the year ending January 11, 1848, was 79,073*l.* 19s. 10d.; profits of 1847, after deducting debts, &c., 32,506*l.* 3s. 4d.—total, 111,580*l.* 3s. 2d.: dividend, 24,659*l.* 16s.—leaving undivided profits of 86,930*l.* 7s. 2d., and a total reserve fund of 7856*l.* The report was unanimously adopted, and the usual vote of thanks passed to the chairman, manager, directors, &c., for the prosperous state of the affairs of the company, notwithstanding the late monetary depression.

AYRSHIRE AND GALLOWAY.—The first sod was cut on Friday last, by Mr. Walker, of Drumgrange; Major Guthrie, of Dalmallington, conveying the first barrowful of earth to its destination.

DUNDEE AND PERTH RAILWAY BRIDGE.—Rapid progress is now being made with this large timber erection. An improvement in the structure of the arches has been adopted, by which additional safety will be ensured, both for the bridge itself, and also for the inhabitants of Perth, in the event of a flood taking place in the river. The arches, instead of being constructed of straight logs of wood, according to the original invention, are to be curved, by which means an additional 5 ft. of space between the water and the bridge will be gained. It may be remembered that the act provides that there shall be five clear feet between the bottom of the lowest timbers of the bridge and the highest known flood, and as this space is still preserved, of course all the additional room described by the arch is acquired besides, which will be no small consideration when a large body of water is rushing rapidly through it.

GREAT NORTHERN.—The works on the line between Lincoln and Peterborough are proceeding so satisfactorily, that we have great hopes the promise for the opening of this portion of the line in September will be redeemed. We understand orders have been given that the works shall be so far advanced as to allow the locomotive to proceed with ballast over the new bridge by the grand sluice in a fortnight from this day.—*Boston Herald.*

STIRLING AND DUNFERMLINE RAILWAY.—We are happy to hear that this undertaking is now making rapid progress, and that a part of the line will be opened for traffic in the course of the summer. It is expected that the whole distance between Dunfermline and Alloa, with the branch to the extensive manufacturing villages of Tillicoultry, Alva, &c., will be ready about the end of the year. By the opening of this line one of the most valuable manufacturing and mineral districts of the country will be opened up, and access afforded to it from the east and west by means of the Edinburgh and Northern, and Scottish Central Railways, to both of which it will be a considerable feeder. By means of this line also, the chain of communication will be completed between the populous counties of Fife and Stirling and the west of Scotland, besides affording ready access to the large manufacturing town of Dunfermline from all parts of the country.—*Scottish Railway Gazette.*

SOUTH DEVON RAILWAY.—The remaining portion of this line of railway from Totnes to Laira (2¼ miles), within a short distance of the intended station at Plymouth, and 4 miles of the Devonport terminus, was publicly opened on Friday week. The entire line from Exeter to Devonport is 52 miles in length, and that part between Exeter and Totnes has been at work for some time past. The day was kept as a general holiday by the inhabitants of the three towns of Plymouth, Devonport, and Stonehouse, the shops and banks being generally closed on the occasion. Mr. Gibb, the chairman, and several of the Plymouth directors, with about 200 of their friends, left the station in a private train at 8 o'clock in the morning, and in 41 minutes reached Totnes, where they waited the arrival of the directors of other railways residing in London, Bristol, and Exeter. The weather was extremely auspicious throughout the day. After breakfast, at the Seven Stars and Seymour Hotels, the company assembled at the Totnes station, and took their seats in the train, which left the Totnes station at 10.38 A.M. From the high land of Dartmoor, in the centre of South Devon, to the sea-side, the country is traversed with ridges of hills, which gradually diminish as they approach the water's edge. Between these hills are several deep valleys, in which originate the Rivers Erme, Teign, Dart, Plym, &c. To cut through the high land, and cross these valleys with a railroad, is a formidable work for any engineer; and all present in the train on Friday last appeared to be perfectly satisfied with the great talent and ingenuity displayed by Mr. Brunel in overcoming the natural difficulties of the undertaking. By curved viaducts, more than 100 feet high, and formed of heavy balks of timber, laid across massive moorstone piers, the road crosses the valleys of Glase, Ivy-bridge, Blatchford, and Slade. From these portions of the line, looking down the vales towards the sea, the country presents a most delightful appearance, and all sense of the supposed danger on the viaducts is lost in admiration of the picturesque scenery. The train arrived at the temporary station at Laira at 23 minutes past 11 A.M., having run from Totnes in 45 minutes. The train was greeted on its nearing Crabtree and Laira by tens of thousands of the inhabitants of Plymouth, Devonport, and the vicinity, a large majority of whom had never before seen a railway train in motion. This concourse of persons were not only pleased with the novelty, but highly gratified at the prospects of benefits to be derived from having at length obtained the advantage of direct communication with the metropolis and manufacturing districts.

WATERFORD AND KILKENNY.—On Saturday last, this line was inspected by the Government officer. The result was satisfactory. On Tuesday, the ceremony of opening it as far as Thomastown took place, amid much rejoicing.

ALLEGED ILLEGAL USE OF NAMES AS DIRECTORS OF A RAILWAY COMPANY.—At the Worship-street Police-office Mr. T. Fuller, of Herbert-street, Hoxton, was charged with having, on the 1st of August, 1846, and on sundry subsequent occasions, falsely and unlawfully advertised the names of diver persons as directors of a certain company called the Great Southern of Madras Railway Company, well knowing the same to be false, whereby he had incurred for every such offence a penalty of 10*l.* A second summons was also directed against the accused for having, as the promoter of the said company, unlawfully failed to make to the Registry-office the necessary returns of the names of the directors and other parties connected therewith, whereby he had incurred the further penalty of 20*l.* The case, as stated on the part of the prosecution, was this—About the month of August, 1846, a period when the most extravagant expectations were entertained as to the immense advantages to be derived from the railway speculations, several persons started a company in which Mr. How, the prosecuter, unfortunately became a shareholder, denominated the Great Southern of Madras, and professing to run from Negapatam to Mazore *vid* Trichinopoly and Paulghaut to Pomang and Calicut, and it was also specified that no shareholder should be responsible to a greater extent than the mere amount of his deposit. The capital was set forth at 2,000,000*l.*, divided into 40,000 shares of 50*l.* each, of which 10,000 were to be reserved for parties in India, and the deposit money to be 5*l.* per share. Certain individuals, comprising D. Rhodes, Esq., of Inlake, Mansfield; Capt. Rutledge, of Claremont-square, and late of Madras; and a variety of others, all purporting to be persons of station and condition, were set forth as the directors. The original promoters of the scheme were the defendant, Fuller, and two others, whose names were duly entered at the Registry-office, in pursuance of the 4th section of the Act; and the capital and shares were, at the same time, specified at the amounts before-mentioned. It was also their duty to register the names of the provisional directors from time to time as they might be appointed, but that obligation had never been fulfilled; and it had been fully ascertained that, with scarcely a single exception, the parties represented in the advertisements as the directors and promoters of the scheme had never in any way patronised it, and were wholly unconnected with the transaction. By the terms of the Act the provisional registration only endured for a twelvemonth, when a fresh one, with the names of the committee, was required to be entered; but the affairs of the company continued to be carried on by the defendant and his two associates till October in the following year, when it appeared that the whole of the Nagpore, Trichinopoly, and Calicut line became quietly centred in the single person of the promoter, Mr. Fuller, who was alone entered at the next registration as representing the entire company. The defendant also at once reduced the capital from 2,000,000*l.* to half that amount, and the shares from 40,000 to 20,000; so that, supposing the entire number of shares to have been circulated, which was believed to be the case, he thus contrived at a single swoop to get into his own hands the produce of half the number, as not a single farthing had ever been received, nor the slightest benefit derived, by the *bonâ fide* holders of the shares.—It was contended for the defendant, that the court had no jurisdiction in the case, as the statutory term of six months had more than expired since the alleged commission of the offence.—Mr. ARNOLD expressed a decided opinion as to the validity of the objection, and ordered the summonses to be dismissed.—The defendant's counsel then said, that he was instructed to deny, in the most positive manner, every allegation that had been made upon his client by the complainant's counsel, who had acted from first to last with the strictest good faith; and so anxious were all the parties connected with the undertaking that everything should be carried out correctly, that they had taken the advice of eminent counsel, who were of opinion that a railway started or constructed at Madras, or any other East Indian presidency, was not subject to the provisions of the Act regulating those in the United Kingdom.—Both the summonses were then formally discharged.

WEST LONDON LITERARY AND MECHANICS' INSTITUTION.—The annual general meeting of this institution took place on Wednesday last,—F. LLOYD, Esq. (one of the vice-presidents), in the chair.—Though established but only two years, it numbers upwards of 300 members, subscribing 1*l.* 4*s.* each. Lord Robert Grosvenor, M.P., a vice-president, presided at the anniversary dinner, supported by the Rev. W. J. Irons, vicar of Brompton, and Mr. Lloyd.

MANUFACTURING PREMISES, SOUTH WALES, on the banks of a tide river, about a quarter of a mile from a station on the South Wales Railway, TO BE DISPOSED OF.—The premises, which are held on lease (at a low rent), 27 years of which are unexpired, consist of a large GLASSHOUSE CONE, with extensive BUILDINGS, TWO COTTAGES, and about FOUR ACRES of LAND; they have, for many years, been in operation as a manufactory of charcoal, sugar of lead, and naptha, but, with slight alteration, might be adapted for other manufactures. They were formerly used as glass-works—the sand of the adjoining coast having proved of very superior quality. 39

There are two steam-engines, and other apparatus, which may be taken at a valuation.—Coal may be had delivered on the premises at less than 5s. a ton.

For further particulars, apply to T. W. Lawford, jun., solicitor and land agent, Tirydail, Llandilo, South Wales.

TENDERS FOR WELSH COAL AND NORWAY TIMBER.—TENDERS may be FORWARDED to ME, on or before the 1st proximo, for SUPPLYING from TWO THOUSAND to THREE THOUSAND TONS as may be required, of WELSH COAL, of the best quality, for STEAM-ENGINES, to be delivered over the ship's side, at Looe, on a wharf, or into barges, between Midsummer, 1848, and Midsummer, 1849, in about equal quantities monthly, and so that the mines for which the coal is wanted shall be kept constantly supplied; in default of which, and also of the quality being the best, the extra cost (above the contract price), of obtaining a supply elsewhere, to be charged to the contractors. The mode of payment to be by acceptances at the end of three months from the times the accounts are audited (once in two months).

TENDERS may also be FORWARDED to ME, on or before the 1st proximo, for SUPPLYING the following mines—viz.: West Caradon, Gonamena, Craddock Moor, Wheal Sisters, and Wheal Mary Consols, for 12 months, from Midsummer next, with NORWAY TIMBER, half Deam and half Longsound, of good quality and average lengths, to be delivered at the respective mines free of expense, in such quantities as may be required, and when required, and to be charged at the measurement on which the duty has been paid. Any mine, or mines, may be tendered for separately. 40

Should the agents not approve of the quality of any timber sent in, the contractors to remove the same; and, at the option of the respective adventurers, either to replace it by an article of approved quality, or submit to a deduction from their bills of the amount of difference between the contract price and that at which the adventurers may obtain a supply from some other party; also, the amount of the like difference to be deducted from the contractors' bills in respect of timber purchased elsewhere, in consequence of the contractors not sending in supplies when and as required. Payment for timber by acceptance, at four months, from time of the bills being audited by the adventurers at their two-monthly meetings. EDWARD A. CROUCH.

Liskeard, 1st of fifth month (May), 1848.

IMPORTANT TO CAPITALISTS.—TO BE SOLD, an excellent SLATE and SLAB QUARRY—VARIEGATED MARBLE and HONE QUARRY—COPPER and LEAD MINES—all situated on the same property, within a short distance of the shipping harbour of Portmadoc, Carnarvonshire.

A GENERAL STATEMENT. 41

The above works are situated on a farm called Croesawr-uchaf, in the parish of Llanfrothen, in the county of Merioneth, about seven miles distant from the shipping harbour of Portmadoc, and about two and a half from the railway of the Festiniog Slate Quarries to the port. They are near the celebrated quarries of Festiniog, which are well known throughout Europe; and it hath been ascertained, by competent judges, that this slate vein is a continuation of the very productive vein worked by the Welsh Slate Company at that place, of which Lord Palmerston and other noblemen are partners, which send about 500 tons per week of fine slate to the market. The vein is about 70 yards wide, and very advantageous for working, being situated on the brow of a hill, and the rubbish thrown down, where there is a depository of 200 or 300 yards deep for it, without causing any trespass. The quality is good, splits well, and is of a beautiful blue colour.—Slates of the largest size are made from it, and slabs also, of large dimensions. Thousands of fine slates, worked to sizes, and beautiful slabs, are now ready on the bank.

The proprietor has ascertained most positively that no other slate quarries in Wales can produce such beautiful specimens from so near the surface, and where so little money has been expended.

The MARBLE and HONE adjoins the slate quarry, and some splendid specimens of variegated marble and hone have been already made from it.

The COPPER and LEAD MINES are about a quarter of a mile from the slate quarry, and the metals are of superior quality, and likely to become very productive.

There is the greatest facility for carrying on operations at all the works, which may be done with little expense, as few or no machinery will be required. A sawing and planing engine may be worked by water, just below the quarry.

Satisfactory reasons will be given why it is sold.

For further particulars, and to treat for the same, apply (postage paid) to Mr. Richard Jones, printer and auctioneer, Dolgelly, North Wales, where specimens of the slates, marble, hone, copper, and lead, may be seen.

LAMHEROOE WHEAL MARIA.—At a Special General Meeting of the adventurers in this mine, held at the offices, 4, King-street, Cheapside, on the 27th ultimo, Mr. John Sunley, a member of the finance committee, having, on behalf of the late deputation to the mine, made a verbal report, in which he expressed his opinion that the mine was a valuable one, and would yield returns sooner than might be expected, if worked in future in the manner recommended by Capt. Tabb—namely, to continue the sinking of Davey's shaft to the 50 or 60 fathom level, and try the lodes at that depth, which the captain considers absolutely essential to properly develope the resources of the mine—and that his recommendation to purchase suitable stamps for dressing the ore at the surface, and to be raised from the above lodes, should be taken into consideration;—after due deliberation by the meeting,

It was resolved,—That the recommendations of Capt. Tabb be adopted without delay; and that he be informed thereof, with a request to purchase the stamps from the Silver Valley Mine, at as low a price as possible. 42

It was also resolved,—That the purser be instructed to inform the parties in arrear, that their shares will be absolutely and irrevocably forfeited, according to the 4th rule in the the cost-book, unless the calls due thereon be paid before the 7th of June next.

It was also resolved,—That the purser be requested to call a special general meeting of the adventurers for Thursday, the 8th of June next, to be held at the offices, 4, King-street, Cheapside, London, at One o'clock precisely—to forfeit all shares upon which the call due shall then remain unpaid—to make a further call, if necessary—and on other business.

In pursuance of the last-mentioned resolution, therefore, I hereby give Notice, that a SPECIAL GENERAL MEETING of the adventurers in the above mine will be HOLDEN at the offices, 4, King-street, Cheapside, London, on Thursday, the 8th day of June next, at One o'clock in the afternoon precisely, for the purposes named in such last-mentioned resolution. FREDK. W. P. CLEVERTON, Purser.

Saltash, May 4, 1848.

GADAIR MINING COMPANY.—At a Special General Meeting of adventurers, convened by circular, and held at the offices, 25, Fleet-street, on Tuesday, the 9th of May, 1848,

G. W. BLANCH, Esq., in the chair.

The minutes of the preceding meeting, with the subsequent proceedings of the finance committee, having been read, the following resolutions were carried unanimously:—

That the accounts, this day presented, be referred to D. L. Williams, Esq., and H. English, Esq., to examine and audit the same—whereupon they be entered in the cost-book, and a printed copy thereof transmitted to each adventurer. 43

That, upon the representation made by Mr. James Truscott, of the expressed opinion of a majority of the adventurers that it was advisable the future business of the company should be henceforth conducted at the British Mining Offices, Manchester, such desire be complied with; and that the purser be authorized to give up the books and papers, on obtaining a receipt for the same.

That, with the view of liquidating the present outstanding claims, and also providing a fund for the prosecution of the workings of the mine, the adventurers be recommended to increase their interest, in the ratio of one additional share to every 10 at present held by them at par; and that they be invited to make such further increase as they may deem fit.

That the thanks of the adventurers are eminently due to the committee for the gratuitous services rendered by them in conducting the affairs of the mine.

That this meeting fully appreciate the services of Mr. Nicholas Truscott, in his office as purser, and express their acknowledgment of the same accordingly.

G. W. BLANCH, Chairman.

The cordial thanks of the meeting were unanimously given to G. W. Blanch, Esq., for his conduct in the chair.

CORNWALL NEW MINING COMPANY.

Capital £100,000, divided into 20,000 shares, of £5 each.

(With power to be increased.)

To be incorporated, in pursuance of the statute of 7 and 8 Vic., cap. 110—by which the responsibility of each shareholder is limited.

Deposit 20s. per share.

Not to be Paid until the Company is completely Registered and Incorporated. 44

The CORNWALL NEW MINING COMPANY is ESTABLISHED to WORK a SERIES of TIN and COPPER MINES, chiefly in the district of ST. IVES, which has hitherto afforded a larger profit on its return of ore than any other part of the county.

In pursuance of this plan, five of this description have been already selected—viz.: Georgia Tin Mines, Trewortha Tin and Copper Mine, Bray Tin and Copper Mine, Trevarno Tin and Copper Mine, and Wheal Squire Tin and Copper Mine, with whose owners the committee have been enabled to make such advantageous arrangements, as to enable them to work one or more with even a small portion of the proposed capital.

These mines are not only known to contain mineral ores of immense value, but the workings are already so far advanced, that the lodes ascertained and reached must produce early and large returns; and, in addition to the above, there are others which the committee have secured on sufficient public support being obtained.

With a view of inducing the public generally to avail themselves of such a beneficial employment of their capital, the committee have made the shares £5, and of which only £3 10s. is to be paid within 18 months—limiting further calls to the control of the subscribers themselves, and to be made only when a dividend shall have been declared.

Applications for shares to be made, in the usual form, at the offices of the company, 17, Essex-street, Strand; and to the following brokers and agents, of whom detailed prospectuses may be obtained:—Messrs. G. and T. Irvine, Liverpool; Messrs. Cardwell and Sons, Manchester; Messrs. J. Scott and Son, Birmingham; Messrs. Rhodes and Hayes, Leeds; Messrs. Brady and Co., Hull; Mr. Joseph Clarke, jun., Southampton; Mr. Chas. Claye, Halifax; Messrs. William and Charles Skardon, Plymouth; Messrs. W. Moore and Co., Huddersfield; Mr. Thomas Dewhirst, Bradford; Mr. Henry Vatcher, Exeter; Mr. Ralph Dodsworth, York; Mr. W. F. Collier, Brixham; F. Crowe, Great Yarmouth; Mr. Charles Vincent, Dartmouth; Messrs. Edward Morgan and Co., Norwich; Messrs. Robinson Crusoe and Son, King's Lynn.—Prospectuses can also be had at the office of the *Mining Journal*, 26, Fleet-street, London. GEORGE LOCKWOOD, Secretary.

Office, 17, Essex-street, Strand.

ASSAYING AND ANALYSIS.—Mr. MITCHELL begs to inform the MANAGERS, &c., of MINES, SMELTING-WORKS, and MANUFACTORIES, that he still continues to CONDUCT ASSAYS and ANALYSES of all PRODUCTS, metallurgical and manufacturing, at his LABORATORY,

23, *HAWLEY-ROAD, KENTISH TOWN, LONDON,* 45

to which address communications are to be forwarded.—Instruction in all branches of assaying and analysis as usual.

ADCOCK'S PATENT SPRAY PUMP.—This important INVENTION having been PERFECTED, and brought into SUCCESSFUL PRACTICAL OPERATION, the PATENTEE is ready to RECEIVE, and to execute, ORDERS.—Apply to Henry Adcock, C.E., at his offices, No. 2, Moorgate-street, London, where pamphlets, descriptive of the invention, may be had; at the office of the *Mining Journal*, 26, Fleet-street; and through any respectable bookseller—price 6d. 46

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY 47 BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th; and from Suez on or about the 10th of every month.

For rates of passage-money, plans of the steamers, and to secure passages, apply at the company's offices, No. 122, Leadenhall-street, London.

TO FAMILIES ABOUT TO VISIT ITALY.—STEAM DIRECT FROM SOUTHAMPTON TO GENOA, LEGHORN, AND CIVITA VECCHIA.—The next DEPARTURE for the above ports will be the Peninsular and Oriental Company's steam-ship *PACHA*, Capt. JOHN OLIVE, on MONDAY, May 29, at 2 P.M. This vessel has been fitted expressly for first-class passengers and their servants. Horses and carriages taken on deck. Private cabins can be secured by early application.—Rates of passage and plans of the vessel may be obtained at the company's offices, 122, Leadenhall-street, London. 48

NOTICE TO PASSENGERS AND SHIPPERS TO BOMBAY, CONSTANTINOPLE, &c.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY Beg to give Notice, that, in consequence of the discontinuance of the India Mail of the 3d of the month from Southampton, the company's steamer *ARIEL*, between Malta and Alexandria, is WITHDRAWN, as well as one of the steamers on the Constantinople line, heretofore employed in the conveyance of these mails. Under this new arrangement, it becomes necessary for the company's steamers for Constantinople to start from Southampton on the 27th of every month.—The *ERIN* will be DISPATCHED from SOUTHAMPTON for CONSTANTINOPLE, &c., on the 27th inst.

Peninsular and Oriental Steam Navigation Company's Offices,
122, Leadenhall-street, May 11, 1848. 49

SWANSEA DOCK COMPANY—NOTICE.—The directors have the satisfaction to announce to the shareholders and the public, that the DIFFERENCES which existed in the DIRECTION have been fully ARRANGED, and that the entire management of the company is now indisputably vested at Swansea, in accordance with the subjoined document:—

"We, the undersigned, do hereby severally admit and declare, that we have ceased to be directors of the Swansea Dock Company, and have done all acts required of us to vest the sole and exclusive management and direction of the said company, and of the affairs thereof, in Messieurs Evan Morgan, Lewis Llewelyn Dillwyn, George Byng Morris, Calvert Richard Jones, William Edmond, Michael John Michael, Robert Eaton, William Walters, and David Francis, who are now the only directors of the said company. 50

(Signed) "SAM. PRICE,
EDM. N. NORCOTT,
W. B. J. P. CAMERON,
A. H. EARLE,
N. P. CAMERON,
N. CAMERON."

"Dated this 20th day of April, 1848.

The directors having effected this most desirable object, intend taking the necessary steps for progress forthwith, and beg to urge on those shareholders who have not yet paid the call, made the 10th of February last, the necessity of their doing so without further delay. By order of the board,

GEO. GRANT FRANCIS, Secretary.

Dock Office, Quay Parade, Swansea, May 4, 1848.

CALEDONIAN RAILWAY COMPANY—LOANS ON DEBENTURES.—TENDERS OF LOANS ON DEBENTURE BONDS are now RECEIVED in sums of not less than £500, for any number of years not exceeding five. Interest to be at the rate of 5 per cent. per annum, payable half-yearly, in London, Edinburgh, Glasgow, or in any country bank. 51

Tenders to be addressed to this office, giving full name and address of lender.—Parties may also communicate with Messrs. Foster and Braithwaite, 68, Old Broad-street, London.

By order, D. RANKINE, Treasurer.

Caledonian Railway Office, Edinburgh, Feb. 25, 1848.

EASTERN ARCHIPELAGO COMPANY.—Incorporated by ROYAL CHARTER.

Capital £200,000, in 2000 shares, of £100 each.

CHAIRMAN—JOHN MACGREGOR, Esq., M.P. 52

BANKERS—Messrs. Glyn and Co.

The objects of this company are to carry on MINING, AGRICULTURAL, and TRADING OPERATIONS in the EASTERN ARCHIPELAGO, and the ACQUIRING and DISPOSING of LANDS in the island of LABUAN and the parts adjacent (BORNEO)—a region abounding in mineral wealth—most fertile in all the valuable tropical productions, and very happily situate for the purposes of commerce. The working of the coal mines in those districts, so highly important to the promotion and extension of efficient and economical steam communication with our eastern possessions, will form a main feature in this company's operations.

By virtue of the company's charter, each shareholder's responsibility is limited to the amount of his subscription, and the capital may be increased to £400,000, and further increased, with the consent of the Board of Trade.

A detailed prospectus, with a form of application for shares, and an inspection of a copy of the charter, may be obtained at Messrs. GLEDSTANES & CO.'S, 3, White Lion-court, Cornhill.

LONDONDERRY MINING COMPANY OF NOVA SCOTIA.—Capital £30,000, in 2000 shares, of £40 each.

It is provided that 21 days' Notice be given of each call, and that no call exceed 20 per cent., and that successive calls be not made at less than six months, and that the aggregate amount of calls, made in any one year, do not exceed 40 per cent.

Incorporated by Act of the Provincial Parliament. 53

The following directors have been named in the Act (together with other persons) as constituting the corporation; and they are to continue in office until superseded, or confirmed, by a vote of the London shareholders—viz.:

The Hon. W. A. BLACK,
The Hon. J. E. FAIRBANKS, } Members of the Legislative Council.
The Hon. ALEX. KEITH,
J. W. JOHNSTON, Esq., Advocate-General.

This company has been formed for the purpose of WORKING a MINE, recently discovered, of IRON ORE, of superior quality and richness, situated in the province of Nova Scotia, about 70 miles from Halifax, and about seven miles from a good shipping port, in the Bay of Fundy.

This extraordinary deposit of specular iron ore has been surveyed by Dr. Gesner and J. W. Dawson, Esq., provincial geologists. Extracts from their reports are appended to the prospectus, and other unquestionable references.

"*To John Ross, Esq., of Truro, Nova Scotia.*

"DEAR SIR,—It gives me great pleasure, in reply to your request, to express the high opinion I entertain of the talents, acquirements, sagacity, and high qualifications of Mr. J. W. Dawson, of Pictou, as a mineral surveyor and geologist, of which I had an opportunity of judging during an examination, which we made together, of several parts of Nova Scotia, and, among others, the district of the Folly River—to the valuable ores of which you are now directing public attention.

"I may further add, that Mr. Dawson's name is now well known to the Geological Society of London by several Memoirs on the Geology of Nova Scotia, accompanied by maps and sections, published in their *Proceedings* and *Quarterly Journal*.

"I have the honour to be, dear Sir, yours, &c.,

"11, Harley-street, May 2, 1848." (Signed) "CHARLES LYELL."

Application for shares will be received by Mr. Charles Walton, of the firm of Charles Walton and Sons, Newman's-court, 73, Cornhill.

One-third of the capital stock of the company is reserved for the colonial shareholders—the remaining 1333 shares are offered to capitalists in London, until the 20th inst.

Printed forms of application may be obtained with the prospectuses, where the Act may be seen.—Prospectuses may be obtained, and specimens of the ore seen, by applying to Messrs. Royston and Brown, 40, Old Broad-street; Messrs. Charles Watson and Sons, 73, Cornhill; or on application to Mr. Henry English, 25, Fleet-street.—Prospectuses can also be had at the office of the *Mining Journal*, 26, Fleet-street, London.

GOLDSCOPE SILVER AND COPPER MINE, in the VALE OF NEWLANDS, KESWICK, CUMBERLAND.

Capital £10,240, in 2048 shares, of £5 each.—Deposit £2 per share.

ON THE COST-BOOK SYSTEM. 54

OFFICES—ROYAL BRITISH AND FOREIGN MINING OFFICES, 140, *STRAND, LONDON.*

This ancient COPPER MINE is now reworking with great advantage, and only 875 shares remain for the public, for which applications should be addressed to the above offices, where detailed prospectuses, reports, and plans, with specimens of the mine, may be seen. Further information may be had on applying to the manager, Captain W. Clemence, on the mine.

FATAL EXPLOSION OF DAKIN'S COFFEE-ROASTING MACHINE.—The PATENTEE'S SPECIFICATION—"MECHANICS' MAGAZINE"—Saturday, 13th May, price 3d.; stamped, 4d.—Just completed, Vol. XLVII., price (cloth and lettered), 7s.—Office, No. 166, Fleet-street (Patent and Designs Registration Office). 55

UNDER BRITISH AND FOREIGN LETTERS PATENT.

TO CAPITALISTS—FIRST CLASS INVESTMENT.— SHARES TO BE DISPOSED OF, in valuable patents, recently sealed, and in works connected therewith. The produce of soft stone, chalk, and sand quarries, is indurated and rendered impervious to wet, frost, vermin, &c.; also plaster of Paris, cayton-roof sheeting, &c., for all building and other purposes. 56

Further particulars, and various specimens to be seen, at Messrs. Hutchison, Wilford, and Co., the patentees, East Temple Chambers, 2, Whitefriars-street, Fleet-st., London.

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES, AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each. 57

DENT'S PATENT DIPLIEDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

THE PATENT OFFICE AND DESIGNS REGISTRY, *No. 210, STRAND, LONDON.* 58

INVENTORS will receive (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION of INVENTIONS and DESIGNS, with Reduced Scale of Fees.

Messrs. F. W. CAMPIN and CO. offer their services, and the benefit of many years' experience, in SECURING PATENTS and REGISTRATIONS OF DESIGNS, with due regard to VALIDITY, economy, and dispatch—assisted by scientific men of repute.

Also, in MECHANICAL and ENGINEERING DRAWINGS, whether connected with Patents, Railways, or otherwise, by a staff of first-rate draftsmen.

Application personally, or by letter, to F. W. Campin and Co., No. 210, Strand (corner of Essex-street).

BRITISH AND FOREIGN PATENT NAIL COMPANY.

(*Provisionally Registered 7 and 8 Vic., c.* 110.)

Established for the MANUFACTURE of every DESCRIPTION of NAILS necessary for house-building, shipbuilding, and coach-building, together with PINS, SPIKES, BOLTS, &c.—The object of this company is to carry out inventions in machinery, which has been fully tested, and found capable of producing NAILS of a quality equal to the best hammered nails, which can be sold by the company at a less price than the common cut nail. Specimens of the nails, and an estimate upon the working of the company's machinery—showing a dividend of 40 per cent. to the shareholders—may be examined at the offices of the company. 59

The shares of the company are £5 each, subject to the Parliamentary deposit of 6d. per share.—The calls will not, at any time, exceed 10s., and no call, after the first, will be made without two months' previous notice.

Applications for shares will, for a limited time, be received by the secretary, until the DEED of SETTLEMENT, which now LIES at the office FOR SIGNATURE, is filled up.

By order of the directors, T. PEPPER, Secretary.

Offices, 28, Surrey-street, Strand, London.

PATENT ALKALI COMPANY'S IRON PAINT.—This PAINT, now first offered to the public, is the PRODUCT of a PATENT PROCESS, and possesses VALUABLE and PECULIAR QUALITIES, not otherwise attainable. Its colour is a purple-brown—it is perfectly innocuous—is far more durable than lead paint, and two coats are fully equal to three of any other paint. A single coat will be sufficient to demonstrate this. It dries rapidly, and its durability is very great. 60

From its chemical composition, it is especially, and above all other paints, adapted to covering iron; also wood, and stuccoed, or brick walls. The peculiar oxidation of the base of this paint makes it impossible that further change should take place in its composition. Its identity with iron secures it from galvanic action, so injurious to the durability of lead paints on iron work. It has been exposed on shipping to the action of seawater, and the sulphuretted hydrogen, so prevalent in sea-ports and tidal harbours, for three years, without change.

Its *cheapness* and *strength* render it admirably adapted for iron railings, farm buildings, and shipping. It will also cover creosoted timber. Price, by the ton, £20, delivered in London. All orders to be addressed to the offices of the company, 20, Fenchurch-street, London; where testimonials may be seen as to the value of the paint.

EVANS, BROTHERS, Agents.

IMPORTANT TO RAILWAY AND STEAM NAVIGATION COMPANIES, MANUFACTURERS, AND ENGINEERS.

W. BROTHERTON AND CO.'S

PATENT LUBRICATING FLUID (or Animal Oil) FOR ALL DESCRIPTIONS OF MACHINERY. 61

W. B. & CO. have the pleasure to state, that the above article is extensively used in her Majesty's Steam Navy, and by several of the principal Steam Navigation and Railway Companies, and is pronounced by them, and by the first practical engineers of the day, to be far better adapted for the purposes of lubrication than any other article hitherto used for such purposes. The Patent Lubricating Fluid is equally applicable for the most intricate and fine pieces of machinery, as for the heaviest bearings of the steam-engine. It is cheaper, much more economical, and cleaner than oils at present in use; is free from smell, and calculated to effect a vast saving in the expenditure of working steam powers.

Further particulars can be had, and testimonials seen, by application to the manufacturers, W. BROTHERTON & CO., Hungerford Wharf, Strand, London.

N.B.—The above article will burn in lamps, and give a light equal to the best sperm oil.

FOURDRINIER'S PATENT SAFETY APPARATUS, for PREVENTING ACCIDENTS IN MINES AND OTHER PLACES, WHEN THE ROPE OR CHAIN BREAKS. 62

By the ADOPTION of this INVENTION the LIVES of the WORKING MINERS may be PRESERVED, and the PROPERTY of the MINE OWNERS PROTECTED from the serious consequences of either of the following accidents—viz.:

1. From the men, or the load, being precipitated to the bottom of the shaft when the rope or chain breaks: in this case the apparatus is *self-acting*.

2. From either the men, or load, being drawn over the pulley: in this case, also, the apparatus is *self-acting*.

3. From the fearful consequences to men or load of a "whirl," or run: in this case the result is equally *certain*.

A COAL PIT, with the SAFETY APPARATUS ATTACHED to the CAGE, is daily at WORK near BURSLEM, in the STAFFORDSHIRE POTTERIES.

To inspect the apparatus, or to obtain any further information, application may be made to Mr. Edward N. Fourdrinier (the patentee), Cheddleton, near Leek, Staffordshire; or to Mr. Joseph Fourdrinier, 68, Arlington-street, Camden Town, London—who are prepared to GRANT LICENSES for the USE of the PATENT.

PATENT GALVANISED IRON AND WIRE ROPE WORKS, *MILLWALL, POPLAR.* 63

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £20, under the ordinary processes. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging.

PATENT FLEXIBLE INDIA-RUBBER PIPES AND TUBING, for Railway Companies, Brewers, Distillers, Fire-Engines, Gas Companies, Gardening and Agricultural purposes, &c.

THE PATENT VULCANISED INDIA-RUBBER HOSE-PIPES 64 are made to stand *hot liquor* and *acids*, without injury—do not become *hard* or *stiff* in any temperature (but are always perfectly flexible); and as they require NO APPLICATION of oil or dressing, are particularly well adapted for *Fire Engines, Pumps, Gas, Beer-Engines, Gardens*, and all purposes where a *perfectly Flexible Pipe* is required.

Made all sizes, from ¾-inch bore upwards, and of any length to order.

Vulcanised India Rubber Garden Hose, fitted with brass-taps, Copper branch and Rose's complete, ready to be attached to pumps, water-butts, or cisterns.

Sole manufacturer, JAMES LYNE HANCOCK,
Goswell Mews, Goswell-road, London.

N.B.—Vulcanised India-Rubber Washers, of all sizes, for joints of hot-water and steam-pipes, and *Vulcanised Sheet Rubber*, any thickness, for all kinds of joints, and other purposes.

TO ENGINEERS AND BOILER-MAKERS.

LAP-WELDED IRON TUBES, FOR MARINE AND LOCOMOTIVE STEAM-BOILERS,
TUBES FOR STEAM, GAS, AND OTHER PURPOSES,
ALL SORTS OF GAS FITTINGS. 65

THE BIRMINGHAM PATENT IRON TUBE COMPANY,

42, CAMBRIDGE-STREET, BIRMINGHAM, & SMETHWICK, STAFFORDSHIRE, MANUFACTURE BOILER and GAS TUBES, under an exclusive License from Mr. R. Prosser, the patentee. These tubes are very extensively used in the boilers of marine and locomotive steam-engines in England and on the Continent—are stronger, lighter, cheaper, and more durable than brass or copper tubes, and are warranted not to open in the weld.

42, CAMBRIDGE-STREET, CRESCENT, BIRMINGHAM.
WORKS—SMETHWICK, STAFFORDSHIRE.
LONDON WAREHOUSE—No. 68, UPPER-THAMES-STREET.



LAP-WELDED IRON TUBES.

W. H. RICHARDSON, Jun., and CO.,

MANUFACTURE every description of WROUGHT-IRON TUBES for Locomotive and Marine Boilers, Gas, Steam, and other purposes. 66

PATENT TUBE WORKS,
DARLASTON, STAFFORDSHIRE.

PROFESSIONAL LIFE ASSURANCE COMPANY,

Connecting the Clerical, Legal, Military, Naval, and Medical professions, and holding out advantages to the public not hitherto offered by any similar institution.

Incorporated. - Capital £250,000.

Established upon the mixed, mutual, and proprietary principle. 67

Rates essentially moderate.—Every description of policy granted. Immediate, survivorship, and deferred annuities; and endowments to widows, children, and others.—Every policy (except only in cases of personation), indisputable.—The assured permitted to go to and reside in Canada, Nova Scotia, New Brunswick, Australasia, Madeira, Cape of Good Hope, and Prince Edward's Island, without additional premium.—Medical men remunerated for their reports.—Loans granted on real or personal security.—One-tenth of the entire profits appropriated for the relief of the assured while living, and of his widow and orphans.—Annuities granted in the event of blindness, insanity, paralysis, accidents, and any other bodily or mental affliction, disabling the parties.—Persons of every class and degree admitted to all the advantages of the corporation.—Rates for assuring £100 at the age of 25, 35, 45, and 55, respectively—namely, £1 14s. 6d., £2 5s. 6d., £3 4s. 3d., and £4 18s. 6d.

Prospectuses, with full details, may be had at the office.—Applications requested from parties desirous of becoming agents. EDWARD BAYLIS, Actuary and Secretary.

Offices, 76, Cheapside, London.

NATIONAL LOAN FUND LIFE ASSURANCE SOCIETY,

26, *CORNHILL, LONDON.*

Capital £500,000.—Empowered by Act of Parliament.

This institution embraces important and substantial advantages with respect to Life Assurances and Deferred Annuities. The assured has, on all occasions, the power to borrow, without expense or forfeiture of the policy, two-thirds of the premiums paid (see table); also the option of selecting benefits, and the conversion of his interests to meet other conveniences or necessity. 68

Assurances for terms of years are granted on the lowest possible rates.

DIVISION OF PROFITS.

The remarkable success and increasing prosperity of the society has enabled the directors, at the last annual investigation, to declare a fourth bonus, varying from 35 to 85 per cent. on the premiums paid on each policy effected on the profit scale.

EXAMPLES.

Age.	Sum.	Prem.	Year.	Bonus added.	Bonus in Cash.	Permanent reduction of Premium.	Assured may Borrow.
60	£1000	£0 3 4	1837	£217 15 1	£109 0 11	£16 0 4	£445 0 0
			1838	192 3 0	87 1 4	13 10 2	395 11 1
			1839	165 11 10	74 1 9	11 3 1	346 2 3
			1840	116 7 6	54 0 10	7 18 10	296 13 4
			1841	111 6 8	49 10 0	7 10 4	247 4 5

The division of profits is annual, and the next will be made in December of the present year. F. FERGUSON CAMROUX, Secretary.

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